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ABSTRACT

Research symposia were held at the 1977, 1978, and 1979 annual conferences of the National Middle School Association. This document reproduces 14 selected studies relating to middle schools from the papers presented during those symposia. Topics covered are effects of teaching behaviors; teacher-managed inservice training; relationships among student self-concept, attitude toward curriculum, and academic achievement; relationships among sex, age, and modality learning style; teachers' attitudes about middle school characteristics and functions; comparisons between Kansas junior high and middle schools; television and students; effects of staffing patterns on student achievement and attitudes; effects of a strike on organizational climate and leadership; effects of organizational structure on attitudes of teachers and students toward middle and junior high schools; effects of cognitive style and classroom climate on students' attitudes and achievement in first year algebra; relationships between performance in eighth grade science and student perceptions of the teacher; relationships between trait anxiety, peer presence, task difficulty, and skill acquisition of sixth grade boys; and relationships between writing apprehension and eighth grade students' attitudes toward literature. (PGD)

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1977-79

JOINT EFFORT OF THE

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PREFACE AND ACKNOWLEDGEMENTS

The Publications Committee of the National Middle School Association is pleased to present this volume of research studies of interest to middle school educators. During 1977, 1978, and 1979 the University of Wyoming published proceedings of the Research Symposia held at the National Middle School Association Annual Conferences. These were contained in the Middle School Research Annuals I, II, and III, which are now out of print. Recognizing the importance of these research studies for the educational community, the National Middle School Association's Research Committee and Publications Committee have cooperated to reproduce selected studies from these three Annuals.

The fourteen studies contained in this volume were selected by the NMSA Research Committee as those most appropriate for publication by the National Middle School Association. Grateful acknowledgement is provided the original publisher as follows:

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In order to keep the cost at a minimum, the studies have been reproduced with only minor editing. The first six studies appeared in 1979, the next three appeared in 1978, and the last five appeared in 1977.

It is the hope of the NMSA Publications Committee that this publication will contribute to the knowledge base of middle school education so that theory and practice may be joined for better education of our middle school youth.

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CONTENTS

Preface and Acknowledgements iii

COMPETENCIES FOR MIDDLE SCHOOL TEACHING: A REVIEW OF EMPIRICAL STUDIES OF TEACHER EFFECTS
David B. Strahan 1

EFFECTIVENESS OF TEACHER-MANAGED INSERVICE EDUCATION IN MIDDLE SCHOOLS
Gordon Lawrence, Richard DeNovellis 9

AN EXPLORATION OF SELF CONCEPT, ATTITUDE TOWARD CURRICULUM AND ACADEMIC ACHIEVEMENT IN THE MIDDLE SCHOOLS
Kenneth McEwin, William E. Blanton, M. Joan Terry 15

THE RELATIONSHIP OF SEX, AGE AND SENSORY MODALITY LEARNING STYLE OF TEN TO FOURTEEN-YEAR OLD STUDENTS
Phyllis L. Messer 23

TEACHERS' ATTITUDES ABOUT THE CHARACTERISTICS AND FUNCTIONS OF THE MIDDLE SCHOOL
Fred L. Splittgerber, Harvey A. Allen, Joseph P. Ryan 31

A COMPARATIVE STUDY OF JUNIOR HIGH SCHOOLS AND MIDDLE SCHOOLS IN THE STATE OF KANSAS
Thomas Owen Erb 41

TELEVISION AND THE MIDDLE SCHOOL STUDENT
John VanHoose 49

THE EFFECTS A MIDDLE SCHOOL INTERDISCIPLINARY STAFFING PATTERN AND A MIDDLE SCHOOL DEPARTMENTALIZED STAFFING PATTERN HAS ON STUDENT ACHIEVEMENT LEVELS, PERCEPTIONS OF SCHOOL ENVIRONMENT, AND ATTITUDES TOWARD TEACHERS
Ron Sinclair, Drea Zigarmi 55

THE EFFECT OF A STRIKE ON ORGANIZATIONAL CLIMATE AND LEADERSHIP: A STUDY OF A MIDDLE SCHOOL
Drea Zigarmi, Ron Sinclair 65

THE RELATIONSHIP BETWEEN THE ORGANIZATIONAL STRUCTURE OF MIDDLE SCHOOLS AND JUNIOR HIGH SCHOOLS AND ITS EFFECT ON THE ATTITUDE OF TEACHERS AND STUDENTS TOWARD THE SCHOOL
Jon E. Draud 75

THE EFFECT OF COGNITIVE STYLE AND CLASSROOM CLIMATE ON STUDENTS' ACHIEVEMENT AND ATTITUDES IN FIRST YEAR ALGEBRA
Mark J. Staszkiewicz 90

RELATIONSHIP BETWEEN PERFORMANCE IN EIGHTH GRADE SCIENCE AND STUDENT PERCEPTIONS OF THE TEACHER
J. Howard Johnston, Glenn C. Markle, James R. Hogan 106

THE RELATIONSHIP OF TRAIT ANXIETY, PEER PRESENCE, TASK DIFFICULTY, AND SKILL ACQUISITION OF SIXTH GRADE BOYS
Leigh F. Kieffer 116

THE RELATIONSHIP BETWEEN WRITING APPREHENSION AND EIGHTH GRADE STUDENTS' ATTITUDES TOWARD LITERATURE
J. Howard Johnston, David B. Strahan 130

COMPETENCIES FOR MIDDLE SCHOOL TEACHING: A REVIEW OF EMPIRICAL STUDIES OF TEACHER EFFECTS

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Middle school educators have made several attempts to consider the unique needs of adolescent learners and to specify teaching competencies for meeting those needs. The Teacher Education Advisory Council of the State of Florida and the Colorado Junior High/Middle School Executives have worked on competencies in year-long studies and generated lists of teaching behaviors which are very similar, lists which reflect the developmental needs of adolescent learners. These lists of characteristics do not reflect, however, a firm basis in empirical research. While based on developmental needs, they do not specify teaching behaviors which have the credibility of empirical validation.

The purpose of this paper is to identify competencies for middle school teaching which reflect both the developmental needs of learners and the validation of empirical research.

Description of the Research Procedures

The empirical base for teacher competencies grows from research on teacher effects. Gage (1972) has defined that research as that which focusses on the relationship between what teachers do and effects on students. In such research, the independent variable is the teacher behavior. The intent of such research is to specify as exactly as possible what effects specific teaching behaviors have on student learning and which teaching behaviors are most likely to encourage desired outcomes in pupil growth.

This study is a review of the literature on teacher effects as that literature relates to middle school students. In preparing this report, the researcher reviewed over twenty reports of empirical studies and a number of research summaries. The criteria for inclusion in this study were that the studies demonstrated clear experimental designs, revealed significant findings, and included populations of students whose ages ranged from eleven to fifteen.

In reporting the findings of these studies, the researcher emphasized "clusters of behaviors" rather than single behaviors in isolation. As Gage (1975) suggests, teacher behaviors, even those which are complex, should reasonably be expected to be more influential when considered in combinations. Rosenshine (1976) and others have begun to isolate such clusters of behaviors and cite a number of studies that have revealed significant differences in effect.

Findings of the Study

A review of the literature of teacher effects revealed eighteen different clusters of teaching behaviors that have proven significant in experimental studies involving students of middle school ages. These eighteen clusters are summarized below.

Personal Characteristics

1. The effective middle school teacher has a positive self-concept.

Several studies have demonstrated a relationship between the teacher's self-concept and the achievement of his students. Aspy and Buhler (1975) found teachers' "Inferred Self Concept" positively correlated to students' cognitive growth. Although the students in this study were third graders, the significant differences in teacher ratings and the validation of both self-concept measures (Fielder's Q-Sort and Parker's) suggests the generalizability of the results.

Edeburn and Landry (1976) demonstrated the effects of teacher self-concept on student self-concept and suggested that "teachers with lower levels of self concept generate greater feelings of inadequacy among children.

In the "Florida Studies in the Helping Professions," Combs and others (1974) reported that effective teachers demonstrated several characteristic attitudes about themselves: they identified with others, felt adequate rather than inadequate, trusted in themselves, saw themselves as likeable, and saw themselves as worthy rather than unworthy.

While the relationship between teacher self-concept and student performance needs much more research, there seems to be an indication that the way teachers feel about themselves influences the ways students feel about themselves and their levels of achievement.

2. The effective middle school teacher demonstrates "warmth."

Tikunoff, Berliner, and Rist (1975, p. 108) found warmth as one of the dimensions that discriminated between more effective and less effective teachers of reading in the fifth grade. Their operational definition of warmth included these characteristics: social closeness, seeking contact with students, touching students, walking with students, using affectionate words, smiling, and looking pleasant.

From his studies, Sears (in Gage, 1972, p. 52) concludes "teachers who like pupils tend to have pupils who like each other." This finding suggests that teacher warmth is an important factor in not only student achievement but also classroom environment itself.

3. The effective middle school teacher is optimistic.

Another generic dimension validated by Tikunoff, Berliner, and Rist (1975) is optimism. More effective teachers more often expressed positive attitudes and pleasant feelings in the classroom. They especially were optimistic in regard to the instructional capabilities of individual students and in their encouragement of students.

4. The effective middle school teacher is enthusiastic.

Rosenshine (1976) cites five studies relating teacher enthusiasm to student achievement. Fortune (1967), Kleinman (1964), and Wallen (1966) found observer ratings on paired adjectives that indicated enthusiasm also correlated to student achievement. Solomon, Bezdek, and Rosenburg (1963) used observer estimation of the amount of vigor and power exhibited by the teacher in classroom presentation and found similar correlations. These researchers also found student ratings on teacher involvement a further indicator of teacher enthusiasm and also correlated.

5. The effective middle school teacher demonstrates flexibility.

Tikunoff, Berliner, and Rist (1975) found that flexibility was a discriminating dimension for fifth grade reading. More effective teachers demonstrated these characteristics: they could change to something else in the middle of a lesson if the students grew restless or disinterested; they adjusted easily to changes in plans, time schedules, absence, or student behavior; they could respond to student requests for constructive changes.

6. The effective middle school teacher demonstrates "spontaneity."

Tikunoff, Berliner, and Rist (1975) found spontaneity a generic dimension. More effective teachers were more able to capitalize on unexpected incidents that arose in class and more often encouraged students to express themselves freely. More effective teachers were less restrained and demonstrated less tendency to avoid situations which might deviate from the planned activities.

Understanding Adolescent Needs

7. The effective middle school teacher demonstrates acceptance of students.

Tikunoff, Berliner, and Rist (1975, p. 90) found that more effective teachers used less "belittling" behaviors and less "oneness." More effective teachers demonstrated less tendency to berate children in front of other students and less public display of negative perceptions. More effective teachers showed a greater tendency to express "acceptance of students." In demonstrating less "oneness," more effective teachers showed less tendency to treat students by groups rather than individuals, less use of peer group controls, and less tendency to treat the class as "one." More effective teachers thus demonstrated a greater tendency to treat students as individuals and accept them as such.

8. The effective middle school teacher demonstrates awareness of developmental levels.

Tikunoff, Berliner, and Rist (1975, p. E-4) defined "awareness of developmental level" as awareness of individual student's emotional, social, and educational needs; assigning tasks appropriate to student's ability;

and adjusting tasks when students appear confused or uncertain. "Awareness of developmental level" significantly discriminated more effective from less effective teachers of fifth grade reading. More effective teachers demonstrated less tendency to push students into activities that they were not ready for, less tendency to assign tasks without regard for individual differences, and less bewilderment at inability of students to perform tasks. More effective fifth grade teachers thus demonstrated greater consideration for the developmental levels of their students.

Instructional Skills

9. **The effective middle school teacher demonstrates knowledge of subject matter.**

"Knowledge of subject" is another of the generic dimensions of teacher effectiveness (Tikunoff, Berliner, and Rist, 1975). More effective teachers knew their subject being taught and were more aware of how to structure lessons and alter instruction according to student needs. Greater knowledge of subject also enabled the more effective teachers to monitor learning and engage students in instructional activity.

10. **The effective middle school teacher uses a variety of instructional strategies.**

Rosenshine and Furst cite eight studies in which researchers found a positive correlation between the teacher's use of a variety of materials and student achievement. Using variability measures such as checklists, counts of materials, frequency of varied levels in cognitive discourse, student ratings, and observer ratings, these studies ran correlations with student achievement. All studies obtained significant results favoring variability on at least one criterion measure.

11. **The effective middle school teacher uses some structuring of instruction.**

Tikunoff, Berliner, and Rist (1975, p. 90) found "structuring" to be a generic dimension. They define structuring as reviewing lessons from previous days and at the end of a lesson, beginning lessons by telling the students what will be learned, outlining main topics, signaling the endings and beginnings of lessons, underscoring important points, and summarizing. More effective teachers showed less tendencies to begin lessons without organizing, change activities abruptly, and begin new activities without summarizing previous ones. A related generic dimension is "abruptness" (p. 91). More effective teachers made smooth transitions between work periods; they eased from one activity to the next; and showed less tendency to make changes in lessons without signaling.

12. The effective middle school teacher monitors learning.

Tikunoff, Berliner, and Rist (1975, p. 91) found that more effective teachers monitor the learning of their students and tend not to fill time with busy work. Not only do more effective teachers check test papers and correct student work to adjust instruction, but they also moved about the room, observed what students were doing, and offered suggestions. They tended not to fill up empty time periods with "busy work" but instead used extra time for creative, social, or interest level activities.

13. The effective middle school teacher uses concrete materials and focusses learning strategies.

Ragosta, Soar, Soar, and Stebbins (in Goode, Biddle, and Brophy, 1975, p. 74) collected data from 70 classrooms by making 12 five minute observations in each classroom on a single day. Observational data was correlated with several measures of achievement. Results showed that teacher emphasis on simple and highly focussed learning tasks was positively related to student learning on tests of both concrete skills and more abstract and complex tests. Gains were associated with simple questions, low frequencies of evaluation questions, moderately focussed learning tasks, and frequency of information given by the teacher. Such results would reflect the need for adequate concrete operations before proceeding to formal operations.

14. The effective middle school teacher asks varied questions.

Gall and Gall (1976) report a study in which sixth-grade students were randomly assigned to treatment groups in art class. Students in one group participated in discussion activities with teachers trained to structure discussions covered the same material with art activities. Students in the discussion group out-performed the control group on measures of knowledge retention and higher cognitive processes.

Rosenshine (1976, p. 63) reports three studies in which the frequency of factual questions was correlated positively with achievement and complex and divergent questions were not. He cites "the lack of significant results for complex or higher level questions."

These divergent findings suggest that no single type of questioning behaviors are consistently significant across grade levels and subject areas. The significance of questioning skills seems to be situationally bound. The ability to ask varied questions and adjust questioning to the responses of the students thus seems to be effective for maximizing instructional discussions.

15. The effective middle school teacher incorporates indirectness of teaching.

Soar (1972, p. 514) cites a number of studies linking teacher indirectness to student achievement. Furst's study especially demonstrates the effectiveness of some measure of indirectness. Using the Flanders system to code audio tapes, she created composite variables of indirectness, cognitive measures, and the combination of the two. In every analysis, there were significant correlations to pupil achievement.

After careful analysis of twelve different studies, Flanders and Simon (in Gage, p. 36) note:

> The per cent of teacher statements that make use of ideas and opinions previously expressed by pupils is directly related to average class scores on attitude scales of teacher attractiveness as well as average achievement scores for instructional ability.

These studies suggest that the middle school teacher can increase performance by building from student responses indirectly.

16. The effective middle school teacher incorporates success building behaviors in working with students.

Van Horn (1976) reports a study of teaching models with secondary students in which one factor to emerge as significant was the association of higher student Specific Self-Concept of Academic Ability scores with positive reinforcers from teachers. Step-wise regression analyses of the data from the study showed the positive sanctions to significant predictors across models and grade levels.

Tikunoff, Berliner, and Rist (1975, p. E-14) note that more effective teachers gave supporting statements to students as they did their work and motivated them by admiring what they did well. They showed less tendency to criticize responses as "wrong" or "it's not what I want." Less effective teachers, in contrast, used more "excluding," "sarcasm," "shaming," "harassing," and "ignoring."

17. The effective middle school teacher diagnoses individual learning needs and prescribes individual instruction.

Tikunoff, Berliner, and Rist (1975, p. E-33) found "pacing" to be a generic dimension distinguishing more effective from less effective at both grade levels and both subjects. More effective teachers monitored the completion of learning tasks, perceived learning rates, and realistically allowed time for work completion.

"More effective" fifth grade teachers demonstrated "individualizing" in reading. They designed learning tasks to match interests and abilities of individuals, defined work expectation on an individual basis, and allowed independent work and small group activities. They showed less tendency to teach the entire class the same lesson and grade on a group standard.

18. The effective middle school teacher demonstrates listening skills.

Several studies by Aspy (in Goode, Biddle, and Brophy, p. 73) validate the effects of listening skills. Focussing on "interchangeable responses," Aspy developed a system for coding teacher statements. He defines "interchangeable responses" as teacher summations of what students say which are interchangeable with what students actually said (p.73). Such responses show that the teacher has heard the student and understood him.

Tikunoff, Berliner, and Rist (1975, p. 90) found "attending" to be a generic dimension. More effective teachers displayed active listening more often than did less effective teachers. They took the time to attend to students' thoughts and expressions. They also acknowledged student activity by gestures and facial expressions with more frequency. Less effective teachers, in contrast, demonstrated a greater frequency of "pretending to pay attention to learning activity."

Conclusions

Middle school teaching is especially complex. The extremely varied and often unpredictable needs of adolescents add to the complexities inherent in any teaching situation. Given this complexity, it has often been difficult to prepare pre-service teachers for middle school success and to offer in-service teachers meaningful enrichment experiences. The competencies described in this study may serve as starting points for future middle school teacher education efforts. While the competencies described do not fully define the effective middle school teacher, they do reduce the complexity. Their basis in empirical research can provide teacher educators a measure of confidence that facilitating such behaviors in teachers will increase the probability of desired student outcomes occurring in their classrooms. As middle school teacher educators plan pre-service and in-service programs that will facilitate these behaviors, further research will provide additional information about these behaviors and others. The growing body of studies of teacher effects may well isolate behaviors to add to this list of competencies and further define the characteristics of effective middle school teachers.

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Effectiveness of Teacher-Managed Inservice Education in Middle Schools

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Inservice education activities that involve teachers in the planning and conducting of them, in sharing and in self-instruction, have been shown by research to be more effective than the more familiar modes of inservice (Lawrence and others, 1974). However, inservice education that is decentralized for teacher management requires a structure, a management system and materials that teachers seldom have time to create and maintain. In Florida, the State Department of Education funded several efforts in the 1970's to develop such materials and procedures.

One of them was the University of Florida's Middle School Teaching Competency Project. Desegregation, population shifts and other circumstances brought into existence new middle schools throughout Florida. The new schools were staffed largely by experienced teachers, but many of them had never before taught 10 to 14-year-old students or worked with the program and objectives of a middle school. There was an obvious need for inservice materials and processes tailored to the situation.

What evolved from the Project's work was a set of self-instructional modules (State of Florida Department of Education, 1973-74) and a system for managing staff development that is based on small teacher groups called peer panels (Lawrence and Branch, 1978). One of the Project's tasks was to validate the 28 modules. Seven of them were selected for quasi-experimental validation by means of systematic classroom observation. The seven were chosen because it was presumed that the effects of using them would be accessible to observation in classrooms at the random times the independent observers would choose to visit. The research problem was to determine whether teachers' use of the modules and the peer panel process would influence teacher and student behavior in the direction of the objectives of the modules.

Research Variables

Teacher and student behaviors, as coded by systematic observation instruments, were the dependent variables. Two of the instruments, FLACCS (Soar, 1971) and CASES (Spaulding, 1970), were carefully developed in previous research. They include a large number of low inference categories for classifying student behavior, teacher affect, control techniques and classroom structure. All 135 teachers (127 middle school and 8 elementary teachers) and their students were observed with FLACCS and CASES. For five of the modules, ad hoc observation instruments were constructed to correspond to the objectives of the modules.

The independent variables (experimental treatments) were the seven modules, incorporating the peer panel process by which they were used. (See Table 1) Space limitations do not permit a comprehensive description of the modules. All the modules concern generic teaching competencies--

those that pertain to teachers of any subject areas. Although the modules have objectives that are distinctly different, one from the others, they have in common a rationale for teaching and curriculum drawn from an analysis of the developmental needs of 10 to 14-year-olds. For that reason, hypothesis 1 was written to test the collective effect of all seven modules.

Hypotheses (Null Form)

1. When all seven modules are taken together as a single treatment, there will be no significant differences between comparison groups (in the institutional cycle design) as measured by FLACCS and CASES.
2. For each of seven modules separately, there will be no significant differences between the group that used a module and a comparison group (FLACCS and CASES observation).
3. For each of the seven modules there will be no significant differences between comparison groups as measured by ad hoc observation instruments.

Table 1

Independent Variables: Modules   Dependent Variables: Observation systems

Module Nbr.	Module Concept(s)	Teacher Behavior		Student Behavior	
		Ad Hoc Categories	General Categories	Ad Hoc Categories	General Categories
3-1	Accomodating physical development needs	Adjustment of classroom objects	FLACCS	5 categories of physical activity	CASES
2-3	Supportive teaching strategies	FLACCS	FLACCS	CASES	CASES
5-1	Prompting Social-emotional growth	FLACCS	FLACCS	CASES	CASES
17-1	Informal counseling techniques	6 categories of responses to student	FLACCS	7 behavioral responses to counseling technique	CASES
2-2	Growth producing group roles	7 categories of behavior in peer group	FLACCS		CASES
18-1	Helping students clarify values	8 categories of choices open to students	FLACCS		CASES
2-1	Using personal interests of students	20 categories on nature of situation, nature of problem, use of subject matter, evaluation and differentiation	FLACCS	Student questionnaire on interests in re: classroom	CASES

Design

Because the participating teachers were volunteers and used modules that they selected for themselves, several different quasi-experimental designs were chosen to fit specific situations and hypotheses. The institutional cycle design (Campbell and Stanley, 1963) was used for hypothesis 1 and for one module covered by hypothesis 3. The diagram shows the design.

Group A	X_1	0_1			
Group B_1 (R)		0_2	X_2	0_3	
Group B_2 (R)			X_3	0_4	
Group C				0_5	X_4

(0 is observation,
X is treatment;
time interval
from X to X was
one month.)

As the diagram illustrates, the experimental variable (module) is recurrent in three time periods (X_2 and X_3 occur at the same time). The design controls, somewhat more than simple pre-post designs, for sources of external and internal invalidity by making these comparisons: $0_2 < 0_1$, $0_2 < 0_3$, $0_2 < 0_4$, $0_5 < 0_1$, and $0_5 < 0_4$.

Thus the testing of Hypothesis 1 involves five comparisons. From a practical standpoint, the design permits all the volunteer teachers to use the modules (with none feeling "left out"), while providing for gathering data (0_2 and 0_5) from groups that have not received the treatment. Although teachers in the sample could not be randomly selected, the institutional cycle design is strengthened by making possible the random assignment of teachers to treatment groups within the design. Because the design is not truly experimental, the results cannot be generalized to settings different from those in which the investigation occurred.

Dunnett's test of planned comparisons was used for hypothesis 2, comparing each module group with a reference group on the basis of FLACCS and CASES data.

For hypothesis 3, one module with a large sample was tested by the institutional cycle design; two modules with small samples were tested by the Wilcoxson sign rank test. For one module the Wilcoxson rank sum test was used. For two others, the ad hoc measurement was served by hypothesis 2. And finally one ad hoc measurement was dropped because observers were unable to find observable situations (module 2-2); and the comparison on module 3-1 was dropped because after the design was implemented, the treatment and reference groups obviously were not comparable.

Results

Collectively, as a single treatment (Hypothesis 1), the modules influenced classroom behavior in a number of dimensions measured by FLACCS and CASES. Module usage was associated with significant changes in these areas: lower aggressive-hostile and lower passive-withdrawn student behavior (CASES); lower verbal and non-verbal negative teacher affective behavior (teacher verbal and non-verbal positive affective behavior also was significantly lower, presumably because the teachers were less central);

teacher less central, making less use of blackboard, attending students more closely, and allowing more student choice. The CASES data comprising "productive behavior" of students changed significantly in two of the five comparisons and that was in the direction opposite to expectations. While all the data tables cannot be included in this summary report, one table--the $O_2 < O_3$ comparison--is given to show the general size of differences (Table 2).

Table 2

P $O_2 < O_3$

Descriptor	$\overline{X}_1$ (Pre)	$\overline{X}_2$ (Post)	t	
Aggressive behavior (children)	12.6047	5.2933	-3.170	*
Productive Activity (")	50.0930	57.1395	1.223	
Passive withdrawn (")	35.1628	20.7209	-2.856	*
Nonverbal Negative (Teacher)	3.5227	1.000	-4.362	*
Verbal Negative (")	5.7955	2.000	-4.439	*
Nonverbal Positive (Teacher)	17.2273	13.3182	-2.403	*
Verbal Positive (")	20.4773	16.0227	-2.969	*
Teacher Central	3.8182	1.9545	-4.163	*
Uses Blackboard	2.3409	1.3409	-2.455	*
Pupil Central	2.159	3.2955	2.573	*
Pupil No - Choice	2.681	1.636	-2.535	*
Seatwork with teacher	1.454	2.27	2.476	*
P $>$ .05 at 2.015				
	N = 43	N = 43		

The test of hypothesis 2 showed which modules accounted for most of the differences noted above. The relationships were generally predictable. For example, the group that used the module on social-emotional development showed the lowest amount of student hostile-aggressive behavior; and the teachers that used the module on student interests had, as a group, the least teacher-centered classrooms. Almost all the module-using groups differed from the reference group by giving the pupils more choice and by making the student more central in the activities of the classroom.

It was possible to test hypothesis 3 for five of the seven modules. Module 2-1, on student interests, had forty-nine users who were observed. One or more of the comparison groups showed significant differences favoring module users in four of the five areas of the ad hoc observation categories.

(The institutional cycle design proved especially useful because most of the differences showed up on comparisons other than $O_2 < O_3$, the only comparison representing pre- and post-observation on the same persons. In effect, the institutional cycle design demonstrated its power in controlling for sources of invalidity that a simple pre-post design cannot control.)

Module 2-1 usage also involved a pre-post student questionnaire, on the use of student interest in the classroom. Twenty-five classrooms, 504 students, were measured. Students perceived increased teacher attention to their interests (.05 level).

The ad hoc measure for module 13-1, helping students clarify values, showed a difference beyond the .05 level between treatment and reference groups.

The ten users of module 17-1, informal counseling, were significantly different from the reference group on two of six categories of the teacher counseling response instrument.

The group of 12 that used module 2-3, supportive teaching, differed significantly from the reference group in three categories: teacher verbal positive affect (beyond .01), teacher central (beyond .01) and student productive activity (beyond .05). The latter was opposite the expected direction.

The fourteen users of module 5-1, social-emotional development, differed from the reference group in seven categories: lower pupil aggressive-hostile behavior (.05), less teacher control (.01), more pupil choice (.001), less teacher use of blackboard (.001), less pupil productive activity (.01), and lower frequency of teacher positive verbal and non-verbal behaviors (.01).

Discussion

The five modules for which adequate and appropriate data were obtained can be regarded as validated by the study. The experimental treatment, of course, included not only the packets of materials but also a system of teacher self-managed skill development with support of a peer panel. How much of the effectiveness of the treatment is attributable to each of its elements can not be concluded from the design. Moreover, the effectiveness of the treatment can be inferred only at the level of changed classroom processes, and short term changes at that. There are no data on the effects on student knowledge, skills or attitudes--either short term or long-term.

It seems safe to conclude that the modules heightened teachers' awareness of classroom objectives represented in the modules, objectives other than subject-matter instruction. The data suggest that teachers' giving attention to the module objectives took their attention away from helping students stay on task (productive activity). Another feasible explanation of the same data is that the new emphases sponsored in the modules produced student behavior that may have been as productive but did not appear as productive to outside observers because it was less conventional. In any case, future research needs to consider carefully whether the diverse student objectives urged by middle school educators are realized at the expense of students' time-on-task.

The teacher negative and positive affect seen in this study was largely teachers' statements of approval and disapproval of students' work or behavior. Rowe (1973) and others have shown convincingly that lowering the frequency of teacher approval and disapproval statements encourages students to take more responsibility to engage in higher level thinking. When students begin to spiral into taking more responsibility, they need more opportunities to make choices of activities, objectives and/or ways to manage their own time.

The modules clearly seemed to encourage these kinds of changes in the classrooms of the teachers who used them.

In sum, three features of the study stand out: a system for teacher-centered inservice education that shows promise; the content of the staff development material that seems to promote classroom changes consistent with middle school objectives; and a research design well suited to real classrooms in which treatments and subjects can not usually be randomly selected.

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AN EXPLORATION OF SELF CONCEPT, ATTITUDE TOWARD CURRICULUM AND ACADEMIC ACHIEVEMENT IN THE MIDDLE SCHOOL

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Introduction

Over the past decade, the middle school concept has emerged as a widely used administrative organization. Philosophically, the role of this administrative organization is to enable the public schools to meet the needs of students who are "in between" in cognitive, affective and social development.

One area of concern at the middle school level is the relationship between the self concept of pupils and their academic achievement. In general, the research evidence indicates a direct relationship between pupils' self concept and academic achievement. For example, a review of over 900 pieces of literature (Wrenn, 1958; Strong & Feder, 1961; Wylie, 1961; Purkey, 1970) reveals that the preponderance of evidence attests to a strong relationship between self concept and academic achievement. In contrast, the results of recent research has created contention. A number of studies (Baldwal, 1969; LaBelle, 1970; Green, 1971; Beebe, 1972; Chang, 1976) have reported no significant relationship between self concept and academic achievement.

At least one explanation for the inconsistent results of research on this topic is that self concept may be an intervening variable between the acquisition of skills necessary for academic ability and academic achievement. It may be more reasonable to assume that a strong self concept aids in the acquisition of skills requisite for performing in academic areas. However, the decision to perform and apply skills in an academic area may be determined by a student's attitude toward a particular academic area. More importantly, it may be reasonable to expect that self concept and attitude toward curriculum areas are distinctly different variables which make unique contributions to academic achievement.

The present study had three purposes: (1) to investigate the interrelationship among pupils' self concept, attitude toward specific curriculum areas, and academic achievement, (2) to examine the underlying structure of performance on measures of self concept, attitude toward curriculum areas, and academic achievement, and (3) to determine the unique contribution made by performance on measures of self concept and attitude toward curriculum to the prediction of academic achievement.

Method

Subjects

Subjects for the study were 336 seventh grade students from two schools in North Carolina. Each of the schools utilized a 7-9 grade organizational pattern with grades 7-8 utilizing a middle school concept.

Procedure

During the spring of 1978 students were administered the California Test of Basic Skills, Form Q (1968) to determine achievement in three curriculum areas. Reading Achievement (RA) consisted of total Vocabulary and Comprehension subtests scores. Language Achievement (LA) comprised total Mechanics, Expression and Spelling subtests scores. Math Achievement (MA) was determined by total Computation, Concepts, and Applications subtests scores.

Following the administration of the achievement battery, The Self Appraisal Inventory, Intermediate Level (1970) was administered to assess self concept. This inventory measures four aspects of self concept: Self Concept - General (SCG), Self Concept - Family (SCF), Self Concept - Peer (SCP) and Self Concept - Scholastic (SCS). To determine areas of self concept, this measure asks students to respond to statements along a four point scale ranging from Strongly Agree to Strongly Disagree.

Three measures of attitude toward curriculum were obtained: Attitude Toward Reading (ATR), Attitude Toward Math (ATM), Attitude Toward Language (ATL). Each measure employed the semantic differential technique of using ratings of semantic space between pairs of bi-polar adjectives which had maintained high loadings on factors related to evaluation, potency, activity and anxiety (Osgood, Suci & Tannenbaum, 1957).

Analysis

Product-Moment correlations were computed among scores obtained with measures used in the study. The contribution made by measures of self concept and attitude toward curriculum to predicting achievement was determined by a Step-Wise Regression Program (BMD028). One factor analysis was conducted with scores obtained. Data were factored by the principal component solution with unities in the principal diagonal. In the analysis three components with eigen values greater than one and accounting for approximately 62 percent of the total variance in the system were rotated by Kaiser's (1958) normalized varimax routine.

Results

Table 1 presents the raw score means and standard deviations for variables included in the study. As can be seen, these data indicate that performance on these measures are similar to that expected of students within this age group.

Intercorrelations among variables included in the study are presented in Table 2. As might be expected, the intercorrelations among reading, math and language achievement are significant and range from .79 to .87. Similarly, all but one of the intercorrelations among measures of self concept are significant, ranging from .29 to .45. The obtained intercorrelations among attitude toward curriculum, however, do not follow the above pattern. Attitude Toward Language correlates significantly with Attitude Toward Reading, but not Attitude Toward Math.

It is surprising to note that three measures of self concept (SC-G, SC-P, SC-F) correlate negatively with the measures of achievement. In contrast, the measure of self concept in relation to scholastics (SC-S) is positive, although not significant. Of even greater interest are correlations between attitude toward curriculum areas and achievement. Attitude Toward Reading (ATR) correlates significantly with all measures of achievement. Attitude Toward Language (ATL), on the other hand, does not correlate significantly with any measure of achievement. Finally, Attitude Toward Math (ATM) only correlates significantly with MA ($r=.33$).

The stepwise regression results for predicting Reading Achievement with measures of self concept and attitude toward reading, math and language are presented in Table 3. Five of the seven predictor variables were entered. The data reveal that the most significant predictor of Reading Achievement is ATR, accounting for 13 percent of the variance. The inclusion of SC-G and SC-F fails to increase the precision for predicting achievement, although the five variables explain 21 percent of the variance ($R=.46$) in achievement.

Table 4 shows the significant variables for predicting Language Achievement, the most significant predictors are SC-G ($R=.21$) and SC-S ($R=.34$). Including ATR increases the Multiple R to .39. The total equation ($R=.42$) accounts for 18 percent of the variance.

Table 5 provides the stepwise regression results for predicting Math Achievement. The most meaningful predictor is ATM ($R=.33$), accounting for 11 percent of the variance. The inclusion of SC-G, SC-S and SC-P increases the precision of the equation significantly ($R=.46$). Thus, the total equation explains 21 percent of the variance.

Table 6 presents the three rotated factors in the structure of measures related to self concept, achievement and attitude toward curriculum. The first factor (Achievement) with three loadings (RA, LA, and MA) contributes 27 percent to the total variance of the structure. Factor II, called Self Concept, loads with four variables (SC-G, SC-S, SC-F, SC-P) and accounts for an additional 19 percent of the variance. The third factor, Attitude Toward Curriculum, maintains three variables (ATR, ATL, ATM), and increases the variance accounted for in the structure by an additional 16 percent. In summary, the clarity of the three factors which emerge point out clearly that the underlying structure of the space occupied by measures of self concept, achievement, and attitude toward curriculum represents three independent dimensions.

Discussion

It appears that there is no meaningful interrelationship among measures of self concept, achievement and attitude toward curriculum area. On the one hand, the literature contends that a significant and positive relationship exists between self concept and achievement. Surprisingly, the results of this study suggest a negative relationship between self concept and achievement. On the other hand, these results demonstrate a substantial relationship between attitude toward curriculum areas and achievement.

In general, measures of attitude toward curriculum and certain measures of self concept are able to predict achievement. However, when these measures are used as predictors the magnitude of the prediction accounts for only 18 to 21 percent of the variance associated with achievement. Consequently, a large portion of achievement must be explained by other variables. Further, the factor analysis results of test scores used in this study, along with the intercorrelations among these scores, indicate that measures of self concept, attitude toward curriculum, and achievement assess distinctly different dimensions of performance.

From our perspective, it could be reasoned that these results would be expected. Most teachers are familiar with students expected to have weak self concepts. Teachers are also aware of the fact that many of these same students use achievement as a means to compensate for a weak self concept. For other students, the obverse is true. Many students expected to have strong self concepts identify with areas of achievement unrelated to academic performance. In other words, a strong self concept may be a necessary ingredient for achievement, but its possession does not insure achievement.

The results of this study do lend credence to the idea that self concept in relation to scholastics moderates achievement. For example, the correlations obtained between Self Concept-General, Self Concept-Family and Self Concept-Peer and achievement, excluding the very small correlation between Self Concept-Family. In contrast, the correlations between Self Concept-Scholastic and achievement was positive but not significant. It would seem, therefore, that self concept in relation to scholastic areas may lead to skill acquisition and eventually a positive attitude toward a curriculum area. This seems to be reasonable in light of one finding. Attitude Toward Language predicts Attitude Toward Reading and Math but does not predict achievement. In contrast, Attitude Toward Reading predicts achievement in all curriculum areas investigated in this study. Finally, it is well understood that reading is a tool skill used in acquiring content from other curriculum areas.

The practical implications of this study are evident. Educators may be spending time ineffectively by expecting that efforts at improving self concept will result in increased achievement. However, spending instructional time on increasing attitude toward language and reading may well lead to the improvement of reading skill and attitude toward reading. More positive attitude toward reading, in turn may lead to increased reading skill and the application of reading skill in content areas.

Table 1
Means and Standard Deviations of Variables In the Study

Variable	Variable Name	Mean	S.D.
1	Self Concept - General (SCG)	60.56	4.82
2	Self Concept - Scholastic (SCS)	52.01	4.45
3	Self Concept - Peers (SCP)	44.09	4.38
4	Self Concept - Family (SCF)	55.70	4.48
5	Attitude Toward Reading (ATR)	53.41	10.99
6	Attitude Toward Language (ATL)	49.40	12.79
7	Attitude Toward Mathematics (ATM)	52.77	13.66
8	Reading Achievement (RA)	46.07	17.09
9	Language Achievement (LA)	48.45	16.82
10	Mathematics Achievement (MA)	58.50	20.56

Table 2
Intercorrelations Among Measures of Self Concept, Attitude Toward Curriculum Area and Achievement
(N = 336)

	Variable	1	2	3	4	5	6	7	8	9	10
1	SCG	1.00									
2	SCS	.29	1.00								
3	SCP	.32	.22	1.00							
4	SCF	.45	.29	.29	1.00						
5	RA	-.16	.18	-.16	.03	1.00					
6	LA	-.21	.19	-.21	-.04	.87	1.00				
7	MA	-.16	.22	-.20	-.01	.79	.79	1.00			
8	ATR	.08	.22	-.08	.12	.36	.34	.23	1.00		
9	ATM	.05	.23	-.11	.07	.12	.15	.33	.06	1.00	
10	ATL	.12	.15	-.13	.12	.17	.20	.16	.43	.25	1.00

$r \geq .23$, $p < .01$

Table 3
Results of Stepwise Multiple Regression Analysis
Using Measures of Self Concept and Attitude Toward
Reading As Predictors and Reading Achievement
As Criterion

Step No.	Variable Entered	Multiple R	R^2	RSQ Increase
1	ATR	.36	.13	.13
2	SCG	.41	.17	.04
3	SCS	.44	.20	.03
4	SCP	.45	.21	.01
5	SCF	.46	.21	.00

Table 4
Results of Stepwise Multiple Regression
Analysis Using Measures of Self Concept and Attitude
Toward Language As Predictors and Language
Achievement As Criterion

Step No.	Variable Entered	Multiple R	R^2	RSQ Increase
1	SCG	.21	.05	.05
2	SCS	.34	.12	.07
3	ATL	.39	.15	.04
4	SCP	.42	.18	.02

Table 5
Results of Stepwise Multiple Regression
Analysis Using Measures of Self Concept
And Attitudes Toward Math As Predictors
And Math Achievement As Criterion

Step No.	Variable Entered	Multiple R	R^2	RSQ Increase
1	ATM	.33	.11	.11
2	SCG	.37	.14	.03
3	SCS	.43	.19	.04
4	SCP	.46	.21	.02

Table 6
Three Factor Solution for Measures
Of Self Concept, Attitude Toward
Curriculum and Achievement*

Variable	Name	Factors			
		I	II	III	h^2
1	SCG	25	73	17	62
2	SCS	28	63	20	51
3	SCP	11	68	35	60
4	SCF	01	73	14	55
5	RA	92	01	15	88
6	LA	92	08	18	88
7	MA	89	03	18	83
8	ATR	25	11	65	49
9	ATL	15	07	48	26
10	ATM	01	03	86	74

* Decimals omitted

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The Relationship of Sex, Age and Sensory Modality Learning Style of Ten to Fourteen-Year Old Students

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Introduction

The purpose of this study was to investigate the relationship of sex, age and sensory modality learning style of 10 to 14 year old students.

Sensory modality learning style is one of many identified learning styles. (Lesser, 1971; Messick, 1976; Sperry, 1972) Sensory modality learning style may be defined as the consistent individual differences for interacting with the environment through one of the basic senses in order to receive, process, organize and remember information. For classroom educators, the most significant sensory modes are the visual, the auditory and the kinesthetic. (Dembo, 1977) Sensory modality learning style focuses primarily upon the mode of mental imagery employed in thought. Bissell, White and Zivin explained the mental imagery involved with the most significant sensory modalities. They stated:

> When a person thinks visually he is thinking through images. If asked about his thoughts, he might explain that his 'mind's eye sees a clear picture,' as though an internalized slide projector is at work. In contrast, verbal thinking is thinking in words. If asked about his thoughts, a person who is thinking verbally might explain that he 'hears through his mind's ear what his mind's voice says'-as though the mind contains an internalized tape recorder. Kinesthetic thinking consists of having a mental 'feeling' of the texture, contours, and consistancy of the environment. It is as though the 'mind's hands' feel the composition and the spatial relations among objects in the environment. (1971:131)

Sensory modality learning style, like all learning styles, is separate and distinct from learning ability. Four major distinctions are reported here to illuminate the differences between learning styles and learning abilities. First, learning styles generally refer to how an individual learns, while learning abilities are typically thought of as what an individual learns. Thus, learning styles emphasize process, while learning abilities stress accomplishment. Secondly, learning styles are generally thought of as bipolar, while learning abilities are typically considered unipolar. Learning styles vary from a neutral point to two extremes, while learning abilities range from zero to a great deal. The third distinction deals with the different values usually conferred upon learning styles and learning abilities. Having more of an ability is better than having less, while each pole of a learning style has adaptive value in different situations. Fourth, learning styles tend to be pervasive in their breadth and coverage, while learning abilities are particular to a specific domain of content or function. Thus, the ability to memorize information is not necessarily the same as the ability to evaluate information, while the style of learning tends to remain the same for all learning situations. (Messick, 1976)

The term "preferred learning style" generally refers to an individual's degree of extreme on the bipolar continuum, and how advantageously this extreme adapts in different learning situations. Although ability dictates what and how much a student can learn, the students preferred learning style influences the ease and efficiency with which learning takes place. (Reinert, 1976)

Evidence indicated that sex differences may effect an individual's sensory modality learning style. In relationship to the study of sensory modality learning style, the mode of visualization is equated with the spatial domain. (Bissell, White and Zivin, 1971; Bruner, Oliver, Greenfield, et al., 1976) Kogan noted that, although the magnitude of the difference tends to be small, no evidence has been reported citing females performing better than males in the spatial domain. (1976)

There is evidence of a biological basis for the male superiority noted in the area of the spatial domain. Based upon the genetic explanation of a recessive gene for spatial ability carried on the X chromosome, Stafford concluded that, ". . .the aptitude for visualizing space has a heredity component which is transmitted by a sex-linked recessive gene." (1961) Hartlage substantiated Stafford's findings in 1970. (1970)

Reinert reported a sex difference in relation to scores obtained on the Edmonds Learning Style Identification Exercise, a measurement of sensory modality learning style. He found that females indicated a kinesthetic response significantly more than males. (1976)

Evidence also indicated that age may be a factor effecting the 10 to 14 year old students' preferred sensory modality learning style. Most authors agreed that the capability to integrate and coordinate information received through different sensory modes evolves with age, and that the normal adult may integrate information derived from all sensory modes. (Birch and Lefford, 1963; Bissell, White and Zivin, 1971) Noting this general developmental sequence, Sperry explained:

> Developmentally, most children progress from a preference for the kinesthetic modality during pre-school years to later preference for the visual and then verbal modality. It is usually not until middle adolescence that the three modalities work in parallel. (1973:480)

However, the age at which this parallelism "occurs" remains in question, (Derevensky, 1977) and some authors suggested that certain children remain in the kinesthetic stage. (Cuban, 1970; Riessman, 1964)

In summary, the literature indicated that a relationship appeared to exist between sex, age and sensory modality learning style, however, few conclusions had been drawn concerning this relationship. This study was conducted to investigate sex and age as pertinent factors related to sensory modality learning style.

Hypotheses

The Edmonds Learning Style Identification Exercise (ELSIE) (Reinert, 1976) was selected as the measurement instrument for use in this study.

The ELSIE was designed for administration at grade levels ranging from upper elementary to graduate school. The ELSIE was also designed for use by regular classroom teachers, and may be administered, scored and roughly evaluated in less than one-half hour of class time. It can be found in the April, 1976 issue of the Modern Language Journal. (Reinhert, 1976)

The null hypotheses which were tested in this study are stated as follows:

1. There is no significant difference between scores obtained on the ELSIE by male and female students over an age range of 10 to 14;

2. There is no significant difference between scores obtained on the ELSIE by students 10, 11, 12, 13 or 14 years of age; and,

3. There is no significant difference in the pattern of scores obtained on the ELSIE by male and female students at each age 10 to 14 years.

The pattern of scores obtained on the ELSIE involve four classifications. Fifty words are read aloud, causing all subjects to receive the information through the auditory, or listening, modality. Each subject classifies their immediate mental response, how their mind immediately processed each word, into one of four classifications. The first classification, Visualization, is recorded if the subject mentally visualized an object or activity in response to hearing a word. The second classification, Written Word, is recorded if the subject mentally visualized a word spelled out. These classifications are separate measurements of the visual mode. The third classification, Listening, is recorded if the subject had no mental response to hearing a word, indicating that the word did not have to be transferred to another modality to be processed. The fourth classification, Activity, is recorded if the subject mentally felt a kinesthetic or emotional response.

Sample and Data Collection

Seven public school districts within the State of Wyoming were selected by the researcher to participate in the study. The administration of each district selected one of each of the fourth, fifth, sixth, seventh, eighth, and ninth-grade classrooms for testing. Within the districts, these grades were housed in elementary, middle, junior high and senior high school buildings. Two of the seven districts represented rural communities, the remaining districts reflected urban communities. Approximately 671 subjects were tested.

The research sample consisted of 350 randomly selected student booklets. Since the least number of students actually tested in any sex/age category was five, five male and five female student booklets were randomly selected from each age 10, 11, 12, 13 and 14 years from each district.

The administration and scoring of the ELSIE were organized as scripts. Of the 39 classroom teachers participating in the study, 12 requested that the researcher administer the scripts and 27 elected to read the scripts themselves, under the supervision of the researcher. The student booklets were collected from each district and were classified by sex into five levels of age.

Data Analysis

A three-way analysis of variance was conducted upon the obtained scores to determine the significance of the relationship of sex, age and sensory modality learning style as measured by the ELSIE. Table I summarizes the data obtained in the study.

As noted in Table I, a significant main effect exists for ELSIE classifications, indicating that subjects (pooled over different ages and different sexes) perform differently on the various ELSIE classifications. In addition, a significant first-order interaction of sex by ELSIE classification scores exists, indicating that the relationship between male and female averages differs over ELSIE classifications.

Table II provides additional data in support of the three-way analysis of variance results. Numerical data from Table II were used to address the significant main effect for ELSIE scores, and the significant sex by ELSIE interaction.

Table I

THREE-WAY ANALYSIS OF VARIANCE SUMMARY TABLE
FOR SEX x AGE x ELSIE RAW SCORES

Source	df	MS	F
1. Sex (S)	1	.643	.754
2. Age (A)	4	.876	1.027
3. ELSIE Classifications (E)	3	5575.793	98.259*
4. S x A	4	.71	.846
5. S x E	3	321.612	5.668*
6. A x E	12	76.207	1.343
7. S x A x E	12	88.924	1.567
8. Error for lines 1,2,4	340	.852	
9. Error for lines 3,5,6,7	1020	56.756	

* $p < .01$

Table II

THREE-WAY ANALYSIS OF VARIANCE--MEAN RAW AND BAND ELSIE SCORES
FOR MALES AND FEMALES TEN TO FOURTEEN YEARS OLD

Sex	Age	Visualization Raw/Band	Written Word Raw/Band	Listening Raw/Band	Activity Raw/Band
M	10	20.20/.54	11.37/ .20	7.94/-.97	10.20/ .11
M	11	19.80/.60	11.60/ .20	10.00/-.26	8.60/-.11
M	12	17.43/.23	8.74/- .71	10.94/-.09	13.40/ .89
M	13	19.77/.57	7.77/-1.03	9.43/-.54	12.74/ .69
M	14	20.34/.69	8.45/-1.00	10.26/-.34	11.20/ .49
M	TOTAL	19.50/.53	9.59/- .47	9.71/-.44	11.23/ .41
F	10	15.43/-.03	11.09/ .09	11.49/ .17	12.00/ .80
F	11	16.57/ .06	9.54/-.51	9.43/-.38	13.89/1.00
F	12	16.74/ .11	10.26/-.11	8.31/-.94	14.69/1.23
F	13	17.20/ .20	10.09/-.23	10.29/-.20	12.37/ .77
F	14	18.63/ .49	9.37/-.43	8.69/-.89	13.29/ .89
F	TOTAL	16.91/ .17	10.06/-.35	9.64/-.45	13.25/ .94
M-F	TOTAL	18.21/ .35	9.83/-.36	9.78/-.45	12.24/ .78

While the main effect for ELSIE classification scores was not one of the original hypotheses to be tested, information related to each of the four classifications of the ELSIE was necessary to address the third hypothesis. Given the data presented in Table II, the significant ($p < .01$) main effect for ELSIE scores was plotted. Figure 1 illustrates this finding.

Table II also provided information pertinent to the significant sex by ELSIE interaction. When for each sex category mean ELSIE classification scores were pooled over all ages, as noted by the totals on this table, simple main effect tests revealed that differences ($p < .01$) between the sexes exist for the ELSIE classifications of Visualization and Activity. Figure 2 illustrates this finding.

Findings

1. The direction of the significant differences for sex indicated that males, upon hearing a given word, had a visual image of an object or an activity significantly more times than females, and that females, upon hearing a given word, had a fleeting kinesthetic reaction, either emotional or physical, significantly more times than males.

2. The age of young adolescent students is not significantly related to their sensory modality learning style, as measured by the ELSIE.

3. The age and sex of young adolescent students are not significantly related to their sensory modality learning style, as measured by the ELSIE.

Figure 1

THREE-WAY ANALYSIS OF VARIANCE--SIGNIFICANT MAIN EFFECT FOR ELSIE CLASSIFICATION RAW SCORES, POOLED OVER SEX AND AGE

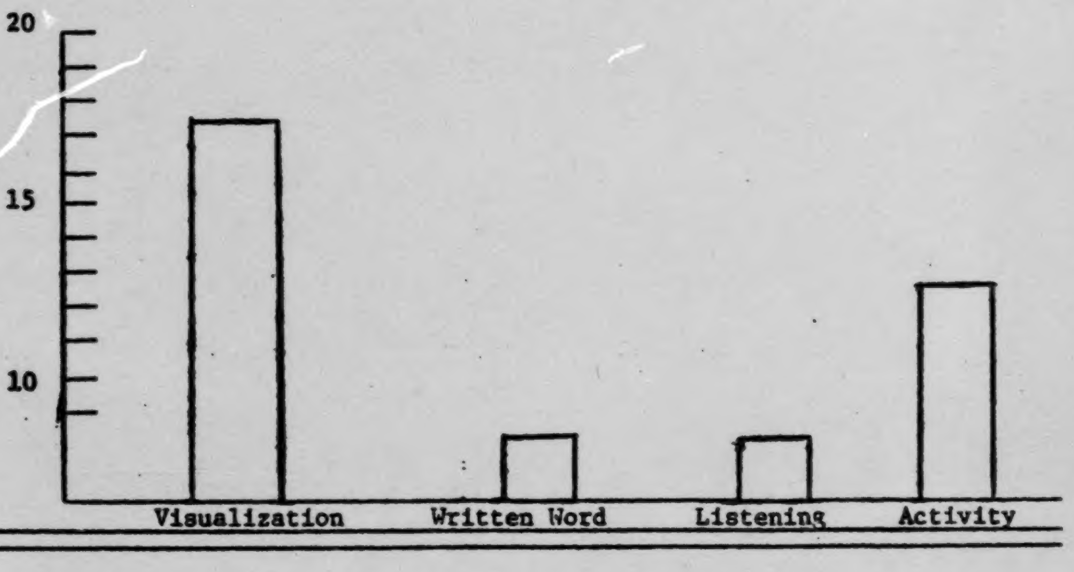
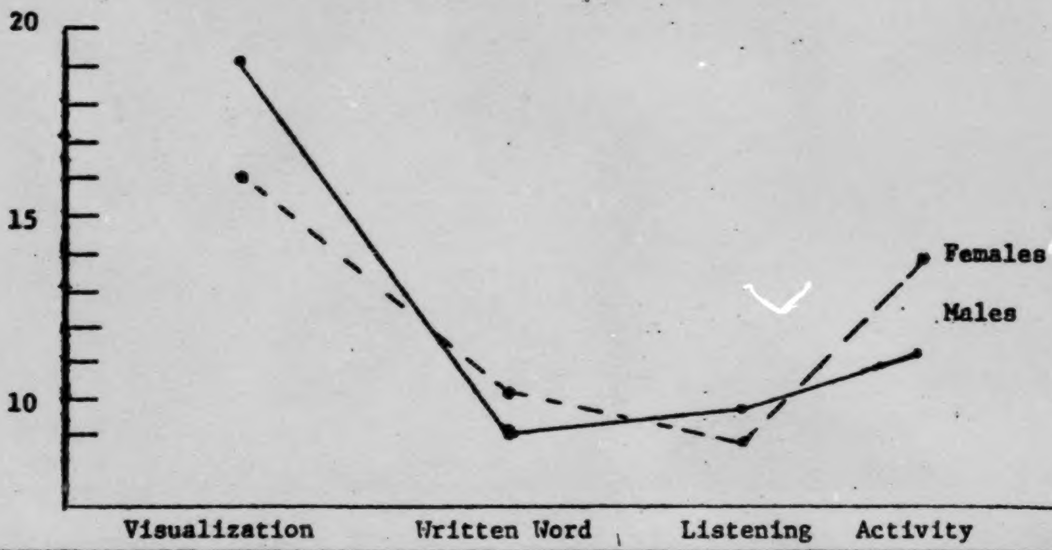


Figure 2

THREE-WAY ANALYSIS OF VARIANCE--SIGNIFICANT INTERACTION OF SEX BY ELSIE CLASSIFICATION RAW SCORES, POOLED OVER ALL AGES



Discussion

Classroom educators must become increasingly aware that students presented with identical information may receive, process, organize and remember the information in different ways, in accordance with each student's ELSIE profile. For example, during an oral presentation, a student whose preferred sensory modality learning style is Listening may simply listen; while a student whose preferred sensory modality learning style is Activity may need to move (wiggle, chew gum, take notes) in order to process the information for learning.

Generally, a student's initial contact with new information should be through the student's preferred sensory modality learning style. Thus, increasing the efficiency and ease of learning new, difficult material.

Three critical variables prohibit the researcher from recommending that young adolescent males be instructed differently than young adolescent females, or that all instruction be matched to a student's preferred sensory modality learning style. First, the educational goal of the teacher must be noted as a variable in the learning environment. Is the educator aiming toward a process goal, a content goal and/or an affective goal? (Bissell, White and Zivin, 1971) Secondly, the learning ability of each student must be considered as a variable. Finally, each student's obtained scores on each ELSIE classification must be noted as a whole. Students who exhibited similar preferences may have distinctly different weaknesses, causing unique educational differences. These variables warrant further research.

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TEACHERS' ATTITUDES ABOUT THE CHARACTERISTICS AND FUNCTIONS OF THE MIDDLE SCHOOL

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The National Middle School Study was originated and conducted during the 1977-1978 and 1978-1979 academic school years. The research study consisted of two components: (1) an information survey to collect and describe the workings of middle schools as seen by national leaders, State Department of Education coordinators, principals of exemplary middle schools and teachers in exemplary middle schools; and (2) an attitudinal questionnaire to collect information about the perceptions of the national leaders, coordinators, principals, and teachers indicated above toward certain functions and characteristics of the middle school relating to students, teachers, principals, curriculum, facilities and organization. The teachers' responses to the attitudinal questionnaire will form the focus for this paper.

Description of the Study

Sample

This paper will report the results of the attitudinal study based on 567 (72.5%) of the 782 teachers who returned the attitudinal questionnaire. The respondents represented thirty-one states. The respondents were from middle schools previously identified as exemplary middle schools by a number of educational authorities including national leaders, State Department of Education coordinators, professional organizations and educational literature. The term, exemplary, implied middle schools which were recognized by the previously cited educational authorities as employing successful middle school practice. The authors of this study recognize the limitations and inadequacies of compiling a representative list of exemplary middle schools from the various educational authorities. In some instances, exemplary middle schools may have been omitted from consideration and still others may have responded to the study.

The sample was selected by sending a follow-up letter to principals in exemplary middle schools (who had already responded to this study) asking their permission to sample six to ten of their classroom teachers. If permission was given, principals were asked to select teachers and one counselor according to the following criteria: (1) all grades found in the school were represented in the teachers selected, (2) all subject areas taught in the school were represented, (3) the questionnaire was shown to teachers and their approval obtained before principals recommended them, and (4) a list containing the participants' names was returned to the investigators who in turn sent the questionnaire to the designated teachers.

Instrument

A questionnaire of 57 Likert items was designed from various educational resources including educational literature, doctoral dissertations various middle school studies and ERIC searches. The instrument was designed to determine the attitude of middle school teachers toward the functions and characteristics of the middle school with respect to the five school components: students (10 items), teachers (13 items), principals (12 items), curriculum (12 items), and facilities and organization (10 items). (See Appendix I). The classroom teachers were asked to indicate whether they strongly agreed (SA), agreed (A), disagreed (D), or strongly disagreed (SD), with the attitudinal statements. The responses were coded as follows: SA=4, A=3, D=2, and SD=1. Thus, a high score indicated a positive endorsement of a statement while a low score represented a weak endorsement. The teachers were instructed to reflect the actual middle school operations and practices rather than the ideal practices in their responses.

A pilot questionnaire was field tested by professional educators representing middle school principals and teachers, graduate students enrolled in classes in middle school education at the University of South Carolina, College of Education Faculty and a State Department of Education coordinator. The professional educators' reactions formed the basis from which the instrument was revised. The revised questionnaire was mailed to the 782 teachers in April, 1978. A follow-up mailing was completed in October, 1978.

Methods of Analysis

The data analyses were concerned with providing a comprehensive description of the teachers' responses. The analyses included an examination of the frequency of responses across the five categories for each item, examination of the mean item responses, intercorrelation of items, factor analysis of items both within and across the five major areas and an investigation of the responses aggregated within the five major areas. Regional differences were also examined.

The primary analysis described in the paper will focus on the mean item responses. The mean item response for each item was calculated and the items were then rank ordered within the five subcategories from the item with the highest mean response to the item with the lowest mean response. Within each subcategory the three items with the highest mean responses were operationally defined as receiving strong endorsement. The three items with the lowest mean response were operationally defined as receiving a weak endorsement. It is important to note that while three items are defined operationally as having received a weak endorsement this is based on a relative comparison and does not imply negative endorsement. The top three items will be discussed as the most strongly endorsed statements, the lowest ranking three items will be discussed as receiving a weak endorsement.

Findings

Measurement Properties

Before describing the teachers' responses, it is important to provide a brief description of the measurement properties of the questionnaire. First, the internal consistency reliability was calculated using the Cronbach Alpha Index of Reliability. The internal consistency reliabilities for the five subcategories were: (1) students (.7142), (2) teachers (.7457), (3) principals (.7600), (4) curriculum (.7797), and (5) facilities and organization (.6919). Second, the dimensionality of the five subcategories was examined by means of factor analysis with varimax rotation. The factor analysis reveals strong within scale item homogeneity. For the student, principal and curriculum subcategories the factor analysis revealed a single unidimensional factor. The subcategory dealing with the teacher contained thirteen items that loaded on two factors. The major factor contained twelve items and dealt with classroom management and the second factor contained one item and dealt with teacher responsibilities. For the facilities and organization subcategory there were two factors: the major factor contained nine items which were concerned with general physical facilities and organizational procedures and the second factor contained one item which dealt with organizational practice.

Subcategories

The frequencies and means for each of the 57 Likert items are shown in Appendix I. For each item the mean (M) responses were calculated. Within each of the five subcategories the items were rank ordered from the item with the highest mean response to the item with the lowest mean response. The top three items will be discussed as receiving strong endorsement; the lowest ranking three items will be discussed as receiving weak endorsement.

Student Subcategory

In the student subcategory teachers indicated strong endorsement for the need for basic reading, writing and arithmetic skills (M=3.220), focusing on students learning to learn (M=3.168) and fostering the development of a healthy self-concept (M=3.101). The response items for which teachers expressed weak endorsement were providing learning experiences directed toward the development of good citizens (M=2.841), stressing skills necessary for survival in society (M=2.850), and providing the discipline necessary for student learning (M=2.910).

It would appear that specific quantitative statements like those in the preceding sentence were no longer considered defensible student goals by middle school teachers. Terms like citizenship and discipline seem to elicit less support than they would have a decade ago.

Teacher Subcategory

From the results of the teacher subcategory teachers saw their primary responsibility as assuming a variety of teaching roles (M=3.238).

Their endorsement of the guidance and counselor services was considered second in importance (M=3.224). The third area of endorsement was that the teachers utilize a variety of instructional techniques in their teaching (M=3.171). Conversely, teachers indicated lowest endorsement for participating in state and national meetings and conferences (M=2.668), applying the findings of educational research to classroom teaching (M=2.707), and establishing a climate of student freedom and self-directed learning (M=2.750).

Teachers emphasized a variety of teaching roles as being important in the classroom. They did not appear to see the necessity of attending state and national conferences. Teachers' effectiveness in the classroom did not appear to be connected to the application of educational research findings.

Principal Subcategory

Within the principal subcategory teachers indicated that the first priority for endorsement should be on principals participating in state and national meetings and conferences (M=3.136). The teachers' second highest endorsement dealt with the principal's willingness to utilize staff in solving school problems (M=3.086). The third highest endorsement was the provision for a planned system of parental involvement on a regular basis (M=2.965). Teachers gave weak endorsement to the principal's involvement of teachers in the selection of faculty and staff (M=2.307), the utilization of management principles based on systems design (M=2.545), and participation of the principal in school board decision making processes (M=2.626).

The findings indicate that teachers see the principal's major leadership role as participation in state and national conferences. It is interesting to note that with the stress placed on team teaching and planning in middle schools one would assume that more teachers would want to participate in staff selection processes. However, this was not the case. The current emphasis by leading educational authorities on training teachers specifically for working with early adolescents was not considered important to middle school teachers.

Curriculum Subcategory

In the curriculum subcategory teachers most strongly endorsed the continued need for the development and refinement of basic skills (M=3.145), requiring depth, breadth and sequence in subject matter (M=3.063), and providing for varied and continuous progress in subject matter (M=3.009). There was weak endorsement for the core curriculum concept (M=2.457), establishment of specific classes for all types of exceptional children (M=2.649), and provision for exploration and learning in career education (M=2.693).

With the emphasis on basic skills teachers continued to advocate varied and continuous progress of subject matter but did not strongly endorse the core curriculum concept. The fact that teachers did not stress the expansion of classes for exceptional children would appear to reflect an acceptance of the concept of mainstreaming.

Facilities and Organization Subcategory

In the facilities and organization subcategory teachers most strongly endorsed the need for expanding shops, laboratories and special enrichment rooms (M=3.1[illegible]), providing for team teaching (M=3.018), and encouraging development in individualized instruction, independent study, learning centers, and the like (M=2.899). On the other hand teachers gave weak endorsements to self-contained classroom for grades 5 and/or 6 (M=2.000), departmentalization at grades 5 and/or 6 (M=2.584), and alternative school programs to meet the need of students (M=2.617).

In a time of declining enrollments and the "Back to the Basics" movement, it would appear difficult to convince the public of the need for additional building space for shops, laboratories and learning centers unless the justification can be linked with improving the basic skills. The mean item responses of the subcategory indicated a greater range of disagreement over the necessary facilities and organization required for a middle school. Transition, one of the key functions of a middle school, was given a weak endorsement by teachers.

Regional Variation

The 31 states represented in the sample were divided into seven regions which included New England, Mid-Atlantic, South, Midwest, Southwest, Rocky Mountains and Far West. These were used as independent variables in a oneway analysis of variance. The dependent variables were the five subcategory totals. There were no significant differences in any of these analyses.

Conclusions

In summary, the study provides a broad description of the teachers' attitudes of the characteristics and functions of an exemplary middle school. The major substantive conclusions seem to indicate:

(1) teachers responded to the attitudinal questionnaire according to how they were evaluated and judged as successful teachers.

(2) teachers strongly endorsed an emphasis on basic skills and students' achievement performance.

(3) teachers saw themselves assuming a variety of teaching roles and assisting with the guidance and counselor services, but gave weak endorsement to teachers attending meetings and conferences which they indicated should be the responsibility of the principal.

(4) teachers indicated that principals should utilize them in solving school problems but they did not endorse principals involving them in staff selection or utilizing educational research findings in the classroom.

(5) teachers did not strongly support the current emphasis at the national level on training teachers specifically for working with early adolescents.

(6) teachers did not support their involvement in staff selection even though the middle school emphasizes team planning and teaching.

(7) teachers saw the need for utilizing various approaches to encourage more parental involvement in middle schools.

(8) teachers did not indicate an urgent need for implementing the core curriculum or establishing specific classes for exceptional children.

(9) teachers gave weak endorsements to departmentalization and self-contained classrooms as organizational patterns in grades 5 and/or 6.

Finally, it would appear that the middle school concept as discussed and written in the literature is being currently practiced in a variety of ways. Teachers' attitudes tended to reflect their perceptions of criteria used to determine a successful classroom teacher. The study pointed out the need for additional comprehensive empirical descriptions of what teachers actually do in the middle school.

NATIONAL MIDDLE SCHOOL STUDY

Appendix I

Appendix I contains a sample of the questionnaire used in this study. For each question, the Appendix shows (1) the mean response (M), (2) the number of non responses (NR) and (3) the number of teachers responding in each category.

The study seeks to determine the attitudes of educators toward certain functions and characteristics of middle schools. You will be asked to respond to statements concerning students, teachers, principals, curriculum, and organization. Your responses should reflect your attitudes toward middle schools as they actually operate not as they ought to operate. Responses to the questionnaire will be completely confidential.

DIRECTIONS: Check the category, Strongly Agree (SA), Agree (A), Disagree (D), or Strongly Disagree (SD) which represents your reaction to the functions and characteristics of the middle school in actual operation.

The Student

Mean	NR	SA	A	D	SD	For the student, the middle school . . .
3.168	5	171	335	51	5	Focuses on students learning to learn
3.012	6	118	361	71	11	Helps in the formulation of personal values and moral standards
3.090	5	140	354	62	6	Fosters satisfactory personal and social adjustment
3.101	8	144	356	55	4	Fosters the development of a healthy self-concept
2.910	7	101	346	95	18	Provides the discipline necessary for student learning
3.034	11	121	368	65	2	Encourages individual initiative and effort directed toward cognitive achievement
2.850	10	90	334	121	12	Stresses the skills necessary for survival in society
3.220	8	209	295	50	5	Emphasizes reading, writing, and arithmetic skills as basic to individual development
2.841	6	81	335	137	8	Maximizes the individual's academic development
3.026	7	105	338	65	2	Provides learning experiences directed toward the development of a good citizen

The Teacher

Mean	NR	SA	A	D	SD	The middle school teacher . . .
3.153	5	150	365	46	1	Establishes a creative learning environment for early adolescents
3.224	4	194	321	41	7	Supports the guidance and counseling services
3.090	6	165	305	86	5	Implements variable groups--large/small, multiage, alternative, etc.
3.056	5	184	254	111	13	Utilizes team planning and team teaching
2.750	10	75	308	161	13	Establishes a climate of student freedom and self-directed learning
2.954	12	121	337	83	14	Provides for, insists upon, and is accountable for student academic achievement
3.238	5	194	326	40	2	Assumes a variety of teaching roles--facilitator, manager, resource
3.171	5	178	323	56	5	Utilizes a variety of instructional techniques--peer teaching, simulations and games, inquiry, etc.
3.144	3	158	345	55	6	Communicates effectively to parents concerning the child's performance in the school program
2.688	8	67	305	154	33	Participates in state and national meetings and conferences
2.707	10	47	344	149	17	Applies the findings of educational research to classroom teaching
3.032	5	117	367	72	6	Works to design learning activities and strategies to meet the diverse learning styles of the students
3.014	6	119	360	71	11	Establishes a climate of classroom discipline and teacher-directed learning

The Principal

Mean	NR	SA	A	D	SD	The middle school principal . . .
2.626	29	90	264	153	31	Participates in school board decision making processes
2.545	75	72	324	87	9	Utilizes management principles based on systems design
2.829	24	124	286	117	16	Provides instructional leadership in middle school programs
2.869	27	133	299	90	18	Employs teachers trained in teaching early adolescents
2.947	37	181	263	72	14	Possesses previous teaching experience in middle or junior high schools
2.945	31	163	285	75	13	Develops and controls the budget for his school
2.965	21	152	297	85	12	Provides a system for parent input on a regular basis
2.822	29	143	261	111	23	Employs or has the final decision in the employment of faculty/staff
2.307	25	75	182	177	108	Involves teachers in the selection of faculty/staff

Mean	NR	SA	A	D	SD	
3.136	27	202	299	34	5	Participates in state and national meetings and conferences
2.907	33	135	318	73	8	Applies the findings of educational research to school administration
3.086	21	207	257	69	13	Utilizes staff in solving school problems

The Curriculum

Mean	NR	SA	A	D	SD	The middle school curriculum . . .
3.063	25	176	307	53	6	Requires depth, breadth and sequence in subject matter
3.145	22	176	342	26	1	Continues the development and refinement of basic skills
2.765	33	86	333	110	5	Focuses on competencies as the basis for curriculum design
2.924	24	143	299	88	13	Encourages a proportional balance between subject matter and exploration in elective areas, the fine arts, and career education
3.009	24	132	359	49	3	Provides for varied and continous progress in subject matter
2.649	26	119	205	194	23	Establishes specific classes for all types of exceptional children
2.825	31	97	345	85	9	Considers both child-centered and subject-centered concerns in a balanced curriculum
2.988	22	179	268	76	22	Encourages participation in activities--clubs, student government, dramatics, recreation, etc.
2.720	35	89	305	133	5	Focuses on humanistic concerns as the basis for curriculum design
2.891	26	104	351	84	2	Provides for mastery achievement in skills and concepts
2.693	23	75	306	146	17	Provides for exploration and training in career education
2.457	58	57	280	153	19	Focuses on the core curriculum concept as the basis for curriculum design

Facilities and Organization

Mean	NR	SA	A	D	SD	Regarding facilities and organization, the middle school . . .
2.785	24	124	280	104	35	Provides for homogeneous or ability grouping
3.018	22	183	269	79	14	Provides for team teaching
2.651	23	119	220	162	43	Establishes flexible/modular scheduling
2.000	44	46	131	211	135	Maintains the self-contained classroom for grades 5 and/or 6

Mean	NR	SA	A	D	SD	
2.616	32	100	264	120	51	Provides for transition between the self-contained classroom and departmentalization
2.584	44	86	290	104	43	Introduces departmentalization at grades 5 and/or 6
2.617	33	83	276	149	26	Fosters alternative school programs to meet the needs of students
2.899	26	137	303	86	15	Encourages developments in individualized instruction, independent study, learning centers, and the like
2.829	24	130	283	105	25	Requires a building permitting flexible, multi-purpose utilization
3.192	23	226	278	32	8	Broadens the program to include shops, labs, and special enrichment classrooms

A COMPARATIVE STUDY OF JUNIOR HIGH SCHOOLS AND MIDDLE SCHOOLS IN THE STATE OF KANSAS

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In the past two years educators in the State of Kansas have begun to take a closer look at early adolescent education. In the winter of 1978 middle level practitioners, university educators, and state department officials formed the Kansas Association for Middle Level Education. From September 1976 until the spring of 1979, the State Standards Board worked to develop a proposal for middle level teacher certification which is currently before the State Board of Education for final approval. A number of school districts have changed, or announced the intention to change, from junior high accreditation to middle school accreditation. However, no systematic data has existed on the status of middle level education in the state.

Problem

This study was designed to determine the current status of middle level education in the State of Kansas. The main research problem was to determine if the organization and practice in accredited middle schools differed from junior high schools in the direction suggested by the literature on middle school theory. The subordinant problems were to assess the differences in junior highs and middle schools on the following dimensions: 1) curricular offerings, including exploratories, 2) guidance procedures, 3) curricular organization, including teaming and cross-grade integration, 4) activities programs, 5) desired staffing characteristics, and 6) teacher preparation.

Relevant Literature

A fair degree of consensus has developed concerning the types of organizational features and practices which should distinguish an effective educational program for early adolescents. Riegle (1971) articulated an explicit list of 18 middle school principles. Over the past decade a number of authors addressing the question of what types of programs are good for early adolescents have lent their support to one or more of the following concepts: (a) advisor base program and/or classroom teacher's role in guidance, (b) activities program and social experiences open to all who wish to participate, (c) a varied exploratory program, (d) team teaching and interdisciplinary studies, (e) emphasis on affective education and personal development, (f) individualized basic skills programs, (g) flexible scheduling, (h) flexible grouping, (i) independent study, (j) community involvement, (k) teachers with specific preparation for middle level instruction, (l) transitional programs, (m) physical activity, and (n) varied or alternative learning experiences.

In addition to the myriads of articles in the Middle School Journal which address various of these concepts singly, the following authors and editors have prepared monographs, books, and anthologies which collectively advocate all of the above listed elements of a good middle grades program: Alexander, Williams, Compton, Hines, Prescott, and Kealy (1969), Compton ([illegible]), Curtis and Bidwell (1977), George (1977b), Guidelines for Middle Grades Education (n.d.), Kindred, Wolotkiewicz, Mickelson, Coplein, and Dyson (1976), Klingele (1979), Leeper (1974), George and McEwin (1978), Lounsbury and Vars (1978), and A Programatic Definition (1977). A second area of concern has centered around the characteristics and background of teachers of early adolescents (Alexander et al., 1969; Baldwin, 1974; Compton, 1978; Kindred et al., 1976; Klingele, 1979; and Programatic Definition, 1977).

To assess the degree of implementation of middle school theory in the real world, two different research models have been employed. Building on the work of Riegle (1971), a number of researchers have executed state-wide studies to determine the level of implementation of the 18 principles he proposed. These studies are mentioned in Bohlinger (1978), who along with Beckman (1978), has reported the most recent study of the Riegle type. Another, less often used, approach to determining how well middle level schools are implementing programs appropriate for early adolescents are studies comparing junior highs and middle schools using instrumentation that extends beyond Riegle's 18 principles. Gatewood and Walker (1971) pioneered this type of study in Michigan. George and Erb (1975), reported by George (1977a), used this approach in Florida. The current study has employed this second approach.

Population/Sample

The population for this study consisted of all schools accredited as either junior highs or middle schools in the State of Kansas. Since only 193 schools made up that population, all 193 were chosen to be included in the sample. For this study schools were classified as junior high schools or middle schools according to the type of accreditation they held with the State Department of Education. Data were received from 116 of 141 (82%) junior high schools and 47 of 52 (90%) middle schools.

Research design/Procedures

An original instrument was developed to survey the organization and practice of middle level schools in Kansas. Instruments used in earlier studies by Riegle (1971), Gatewood and Walker (1971), George and Erb (1975), and James (1977) were examined in developing the new questionnaire. The resulting questionnaire consisted of 40 multiple response questions which dealt with curricular and instructional practices. In addition six grids were employed to gather data by grade level on scheduling, required subjects, optional subjects, activities programs, special services, and curricular organization. A third set of 27 items was used to gather opinions from principals about the types of previous training and personal characteristics they would prefer to see in a person they hired to teach at the middle level.

Several advances over previously used questionnaires were employed. First, more data on curriculum and activities were gathered by grade level which made it possible to determine how well middle level programs were integrated across grade levels. Second, data on required and elective subjects were collected by length of course offered (full year, half year, and less than one half year) in order to assess the implementation of the exploratory concept. Third, data on activities were collected by whether the activity was conducted on the basis of competitive selection or left open to all who wished to participate. Thus the researcher could examine implementation of the concept of open vs. elitist activities programs. Four, principals were asked their opinions as to the types of people they would prefer to hire as middle level teachers.

Copies of the 17-page questionnaire were sent to all junior high and middle school principals during the spring of 1979. Eighty-four percent were returned for analysis.

Data Analysis

Data from junior high schools and middle schools were examined using the crossbreaks technique. Frequencies were converted to percentages for analysis. Chi Squares were calculated to test the response patterns for statistical significance. However, the resulting Chi Square tests were not used rigidly. If a pattern of response merely approached significance (using $p = .05$ as the criterion) the trend was noted for future comparisons. Differences between junior highs and middle schools in organization and practice were noted. Where differences did not exist the pattern common to both was described.

Data from some items were also analyzed using a three-way crossbreaks in order to test those variables not only by type of school but also by size of school. The dividing line between "large" and "small" schools was chosen to be 300 pupils in order to allow for a more or less equal division of schools on the size dimension.

Findings and Conclusions

Curriculum. 1. While virtually all junior highs and middle schools required language arts, social studies, science, and math in the seventh and eighth grades, middle schools were more likely to require a full year of physical education than were junior highs by a ratio of about 8:5.

2. Although middle schools were more likely than junior highs to require courses in music, art, industrial arts, home economics, and foreign language which last less than one half year, they were also more likely than junior highs to require these courses for a full year. The first trend weakened across grade levels from sixth to eighth. The second trend strengthened.

3. Few differences were found between junior highs and middle schools in their elective offerings. Large percentages of both types of schools offered music (vocal, band, and orchestra) electives as well as home economics and industrial arts. Very few of either type of school offered electives in drama, speech, special interests, or important issues such as environment or family living. And those electives which were offered were more likely made available to eighth and ninth grades than to sixth and seventh grades.

Guidance. 1. Junior high schools were more likely to employ a full time guidance person (74% to 49%). But junior highs were also more likely to be larger than middle schools. Forty-five percent of junior highs had more than 500 students as opposed to only 17% for middle schools.

2. Middle schools were twice as likely as junior highs to place "strong emphasis" on the classroom teacher's role in guidance (JHS 16%, MS 32%).

3. Middle schools are more likely than junior highs to make formal provisions for classroom teachers to deliver specified guidance services (JHS 4%, MS 11%). However, as these percentages and those in item 2 illustrate, a majority of middle schools do not follow these practices.

4. The most common practice was for both junior highs and middle schools to send written reports to parents four times per year. However, middle schools were far more likely to hold parent-teacher or parent-student-teacher conferences. Fifty-four percent of junior highs make no provision for parent conferences on a school-wide basis. While 51% of middle schools held parent conferences twice a year.

Organization. 1. The most common pattern was for both junior highs and middle schools to be organized around fixed periods of equal length. Middle schools were more likely to follow some sort of alternate day schedule by a ratio of about 5:3.

2. Departmentalization was the dominant practice in both types of schools. However, a trend toward the use of interdisciplinary teaming appeared in middle schools. Though the total number of schools involved was small, middle schools were about six times as likely to use interdisciplinary teaming (JHS 7%, MS 32% at 7th grade; JHS 3%, MS 20% at 8th grade).

3. A grade by grade examination of scheduling practices and curricular organizations revealed that for both types of schools the patterns were similar for seventh and eigth grades but different for sixth grade. For example, the predominant pattern in both junior highs and middle schools was for sixth graders to be in self-contained classrooms for most of the day. Seventh and eighth graders were found to be in departmentalized arrangements. Seventh and eighth graders were more likely to be in multiaged situations than were sixth graders (JHS 12%, MS 13% at 8th grade; JHS 0%, MS 6% at 6th grade).

Activities. 1. Sixth graders in middle schools were more likely to be able to participate in extra curricular activites than were sixth graders in junior high schools.

2. Junior highs were more likely to restrict participation in student government and boys' and girls' interscholastic sports to a select few.

3. Both types of schools were more likely to offer interscholastic sports than intramurals by about an 8:5 ratio.

4. Other than interscholastic sports (JHS 98%, MS 95%), school parties and band were the most commonly offered activities.

5. Of the activities surveyed, the least commonly offered were speech, drama, newspapers, social dancing, and honor societies.

6. By a margin of 56% to 44% both types of middle level school reported scheduling club meetings during the school day rather than before or after school.

7. Middle schools reported higher participation rates for their pupils than did junior high schools in both clubs and interscholastic sports.

Desired Teacher characteristics. 1. The only statistically significant difference between junior high and middle school principals [illegible] type of training they would prefer for the teachers they hire was that middle school principals were twice as likely to want a teacher with training in the teaching of mini-courses or exploratories.

2. As far as teacher training was concerned both junior high and middle school principals were looking for teachers who had a background in early adolescent growth and development, discipline problems, and student evaluation.

3. Of the 17 items surveyed, the three least important elements of training according to the principals were scheduling, history and philosophy of early adolescent education, and team teaching.

4. The two most prized characteristics of teachers that principals would prefer to hire were believing in the uniqueness of each student and enjoying working with early adolescents.

5. Of the ten items surveyed, the two least important were believing in a student-centered curriculum as opposed to a subject centered one and believing that meaning is conveyed more by non-verbal means than by verbal means.

6. There was more consensus among principals on the characteristics of good middle level teachers than there was on the necessary elements in their training.

Teacher Certification. 1. In junior highs the ratio between teachers with secondary certification and those with elementary was 11 to 1. In middle schools the ratio was 7 to 4.

2. Only about 40% of both junior high and middle school teachers had a middle level endorsement on their elementary or secondary certificates.

Conclusions and Implications

In the spring of 1979 both middle schools and junior high schools in Kansas looked more like mini high schools than like the consensus model of an appropriate school for early adolescents as described in the literature review. Departmentalization rather than teaming, separate subjects rather than interdisciplinary studies, age segregation rather than multi-age grouping, and fixed periods of equal length characterized the organization of both types of schools. Neither independent study nor exploratories were given much emphasis while virtually all schools featured interscholastic sports. Activities offered were often selective with more emphasis shown toward the performing activities (sports, band, and chorus) than toward the developmental ones (special interests, intramurals, and fine arts). Guidance was seen more as an auxilliary activity than as one central to the teaching function. Teachers had been prepared to teach late adolescents and only a minority had added a middle level endorsement to their certificates. Except for wanting teachers with more training in the teaching of exploratories, middle school principals wanted the same types of training for their teachers as did junior high principals. They were not much more interested in teachers with training in team teaching, interdisciplinary studies, affective education, flexible grouping, or values clarification than were their junior high counterparts.

However, in spite of this overall pattern of similar practices, there was revealed by this study the emergence, however slight, of a movement on the part of middle schools toward implementation of middle school theory. In one area the middle schools have already clearly established a different pattern than junior high schools: parent conferences are a regular part of the program, not just reserved for crisis confrontations. There is also evidence that in some schools several middle school components are in practice: teachers do play a larger role in guidance, more of the faculty are organized into teams, exploratories are being offered, and homebases are being provided.

Sustaining the cautious optimism encouraged by the preceeding findings is the knowledge that the middle school movement has come late to Kansas. For only about two years has a momentum for change been building. To convert from a junior secondary school to a fully functioning middle school requires laborious staff development, planning, and community involvement over several years. Therefore, there is reason to be encouraged about the movement currently taking place in Kansas. However, several things which are now in the planning stages must come to pass in the next year or so for this momentum to keep building: the State Board of Education needs to approve middle level certification for grades five through nine; the teacher education institutions need to get planned middle level teacher preparation programs into operation; and school districts need to commit more resources to staff development and curriculum planning.

The baseline data on Kansas provided by this study can be of use to other researchers in a couple of ways. First, Kansas has been added to the list of states for which data are available. Regional differences in the development of middle schools can be investigated as a complement to Brook's (1978a, 1978b) overall national study of middle schools. Second, future studies of junior highs and middle schools in Kansas will have a base against which to assess change over time in the reorganization of early adolescent education in the Sunflower State.

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Television and the Middle School Student

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Introduction

Television has been portrayed by some as a vast wasteland with programs that generate anti-social behavior and passivity and by others as our window on the world that can provide the opportunities for greater cognitive and affective development. These two positions form the extreme parameters of a continuum that includes a multitude of positions based primarily on intuition and subjective judgements. These oversimplifications and sometimes erroneous positions must be shed for enlightened perspectives based on the findings yielded from rigorous studies. This is especially true of educators whose primary charge is to foster the intellectual, psychological and social development of young people. Some systematic and rigorous research efforts have been undertaken to demonstrate the contributions or problems that television usage generates. However, the results of these studies have not been examined by most people - including educators. Given the pervasive use of television in this country - especially by youth - it is apparent that research on its usage needs to be carefully studied.

The bulk of television research has focused on the young person of early childhood and elementary age and suggest trends of interest at that level. Transescents have been studied less often but there are some useful research efforts that deserve careful scrutiny. In addition to yielding critical insights into the lives of transescents, these studies can also serve as the foundation for additional research efforts. Those interested in conducting research on television and transescents will be interested in the pitfalls involved in conducting studies in an area that is so enmeshed in the human experience that it is difficult to isolate concerns, control variables and exclude contaminants.

The purpose of this manuscript is to 1) describe the types of problems that have been addressed, 2) outline the findings that emerge from the research and synthesize these outcomes into trends, 3) provide an overview of the concerns and problems that need further study and 4) explain the methodological concerns that surface in evaluation and research studies on the impact of television.

Review of Past Studies

It must be noted that there are four categories of television programming: 1) commercial programs, 2) commercials or advertisements, 3) public television programs, and, 4) instructional programs. Though research has been undertaken that relates to all categories, simultaneously, most studies focus on aspects within a single category. The findings of several studies will be reviewed to convey the type of concerns addressed. Specific attention will be given to the findings related to middle school students.

Commercial Television Research

The Schramm Study. In an extensive study reported by Schramm, Lyle and Parker in 1961, a series of concerns related to television usage were addressed. The authors, utilizing survey techniques to gather the data, reported the amount of time that children spent viewing television. In the study, variables such as IQ, socioeconomic status, occupation of parent, age, sex and type of television programming were examined. How a child uses television and what a child uses television for were other questions explored. One finding reported was that "some time between the tenth and thirteenth year, the fifth and eighth grade, a striking change occurs. The more intelligent children tend to disappear from the ranks of the heavy viewers." Comparing sixth grade students to tenth grade students, the percentage of students who were heavy viewers in the high IQ category shifted from 64% to 30% as compared to the middle IQ group shift from 73% to 51% and the low IQ group shift from 76% to 67%. It was also noted that a "bulge in mass communication use (occurs) around the sixth grade" (Schramm, et.al., pp. 34-37). That is, the most extensive usage of television occurs at about the sixth grade level.

This research effort is a classic study of 6000 children, involving non-viewers as well as viewers, an experiment that may be impossible to replicate in the United States. In addition, the questions raised in 1961 deserve careful attention today. The researcher focussed more on what children do with television as opposed to what television might do to children. Their attempts to examine intelligence level, family background, sex and race as forces which determine the manner of television usage should be replicated and/or expanded.

Contemporary Research

In the 1970's, two types of studies have received the most public attention -- those dealing with the amount of time that television is watched and those dealing with the impact of certain types of programming such as violent programs. In one recent study (Lyle and Hoffman, 1970), 98% of the students in the sample population lived in a situation in which they had access to a television. It was stated that "television watching, together with sleep and school is one of the major activities of the vast majority of children." Sixth grade boys and girls watched between 30 to 31 hours of television per week with a heavier concentration of viewing on weekends. This declined to between 27 to 28 hours per week in the tenth grade (Lyle and Hoffman, 1970, pp. 130-132).

Five technical reports to the Surgeon General's Scientific Advisory Committee on Television and Social Behavior have been produced; the third volume is entitled, Television and Adolescent Aggressiveness. In this volume a series of studies are reported focussing on the relationship between television violence and deviant behavior. One study (Dominick and Greenberg 1970, pp. 315-336) of fourth, fifth and sixth grade students examined the following attitudinal components: 1) approval of violence, 2) willingness to use violence, 3) effectiveness of violence (as a problem solver), and 4) violence as a solution to conflict situations. "The basic rationale of the study posits that a child who is a heavier viewer of television violence whose family has not actively pointed out that television violence is noxious will have a more positive view of aggression as a mode of conduct" (Dominick and Rosenberg 1970, p. 315). A self-report survey, consisting of items from two attitude inventories, was administered. Television violence made a consistent, independent contribution to the youth's notions about violence. It must be pointed out that this study did not measure increases in violent behavior, only attitudinal components that are believed to be related to aggressive behavior. It is not reasonable to assume that students will behave in a violent way (or sexually permissive manner) because they select a violent response to a situation presented to them in a survey item. Young people do not necessarily do what they say they would do. The mediating effects of societal, community and family mores as well as peer group pressures, may preclude antisocial behavior even if a predisposition to act violently exists.

Instructional Television (ITV)

ITV has been more extensively evaluated than commercial programming. In one recent study of a career development program (Matthews, 1977), it was hypothesized that middle school students viewing the television series, "Bread and Butterflies" and experiencing the recommended follow-up activities, would experience gains in the area of career education in terms of career maturity. In the report, it was stated that "programs of career development, it would appear, can bring about career maturity changes in middle school children. . . The nature of this sample, black middle class, limits generality to other groups." (Matthews 1977, p. 8).

In another study of the impact of television on reading (Busch, 1978), students were classified according to ability in reading through use of the California Achievement Test, and were given a questionnaire regarding their use of television. It was reported that the greatest period of T.V. consumption was during the 4th, 5th and 6th grades. Thirty percent of the youngsters stated that they watched television an average of 50 hours per week. One interesting finding was that "television viewing began to peak in the seventh grade for the middle and high ability students. . . For the low ability students, T.V. viewing did not reach its peak." The peak viewing stage and differences according to ability was first reported in the 1961 "Schramm" study.

In a third study in the ITV area, the "Inside/Out" series was examined (Van Hoose, 1977). The intent of this study was to capture the perceptions of teachers regarding the use of the series with their intermediate students. Two programs were of particular interest - "in My Memory" dealing with death and "Break Up" dealing with spearation and possible divorce. Though many teachers surveyed felt that these topics were sensitive and difficult to handle, the 55 teachers surveyed ranked these two programs in the upper third of the thirty programs in the series, indicating that they were of great value and should be used. The responses of students to the programs tended to be a function of the way in which the teacher discussed the program after it had been viewed. In one classroom in which 10 of the 30 students were from homes where the parents were divorced, the teacher handled the program sensitively and with poise and the students, it was observed, responded positively. In another classroom in which two students of thirty were from "broken" homes, the program was poorly received. The teacher stated that she felt uneasy about the topic and it was reported that her uneasiness was demonstrated in the follow-up activities.

These three studies provide an overview of the type of studies conducted regarding the educative function of television. One dealt with content, one with basic skills and one with affective concerns. Though these areas cannot be separated in the life of a child, they can be isolated for useful study. It is important to add that the academic, psychological and social development of students must be examined interms of their interactive impact on behavior.

Emerging Trends in Research

The following trends surface as the findings of various studies are reviewed: 1) almost all children in the U.S. watch television, 2) the amount of television viewing tends to vary with age, 3) a peak viewing point is reached in the middle school era after which television viewing declines, 4) the amount of viewing and type of viewing tends to be related to intelligence, 5) positive attitudes toward violence tend to be nurtured as the amount of viewing of violence on television increases, 6) no significant relationship between the viewing of television violence and violent behavior has been established, 7) instructional television has, though some televised series, led to positive increases in the cognitive area and desired attitudinal changes.

Areas for Further Study

Other areas of concern deserve greater attention. In the commercial programming area, the following concerns surface:

How Television is Used. 1) how students view television, i.e., viewing while doing another activity such as reading, 2) the basis that students used for deciding to watch certain T.V. programs, 3) why students choose to watch T.V. instead of being involved in other activities, 4) whether students resort to using television because they are bored or because they perceive that there is nothing else for them to do.

How the Environment Effects Television Usage. 1) the controls and guidelines established by parents, 2) the relationships of T.V. usage to family life styles, 3) the impact of the way adult role models use television, 4) the relationship between SES and television usage, 5) the relationship between the physical environment and television usage, 6) the differences that may exist between students living in rural, suburban and urban areas, 7) differences in usage by race, sex and/or ethnic groups.

How Television Effects Transescents. 1) the impact of various types of programs on the actions of students, i.e., Charlie's Angles impact on female hair styles, 2) the effect of the role models projected on T.V., 3) the impact of T.V. usage on values and value judgements, 4) the impact of T.V. on transescent, family interaction.

The Educational Value of Television Usage. 1) the quality of T.V. viewing as compared to other activities that might be pursued, 2) the effect of television on the attention span of youth, 3) the possible linkage between television viewing and boredom, violent action and sexual permissiveness, 4) the impact of T.V. on the overall lifestyle of youth, 5) the possible relationship between T.V. viewing and perceptions of classes in school i.e. Donny and Marie vs. a lecture on the Revolutionary War, 6) the extent to which television serves as a tool to promote the acceptance of diversity among people in our society and world, 7) the extent to which television prepares students for adult life through exposure to the "real" world, 8) the extent to which television promotes antisocial behavior.

ITV. ITV is a unique viewing situation and includes additional concerns such as 1) the degree of preparation of teachers tc use a specific series, 2) how teachers use ITV use a specific series, 3) the amount and type of preparation of students for viewing programs, 4) the quality of the supplementary materials provided and 5) the type of follow-up activities utilized.

Methodological Concerns

When evaluating all television programming to determine instructional value, a variety of design concerns have been recommended to include, 1) visual and auditory attention, 2) appeal, 3) comprehension, 4) cognitive gain, 5) attitude change, 6) performance outcomes, and, 7) process and ecological outcomes (Rockman, 1978).

It is apparent that the methodology should vary according to the clientile being served by the goals of the study, the type of programming, and the setting. If a program has clearly stated goals, is viewed in a controlled setting such as a classroom, and is attended to by teachers in the same way, the controlled experiment paradigm may be the appropriate method. If, however, a program has no stated goals, is viewed at home on a commercial network in the same manner as any program on television, field research such as observations, case studies, or a participation-observation mode may be more appropriate. In some evaluation efforts, (i.e., those attempting to measure academic growth resulting from the use of an ITV program), test instruments may be appropriate. In other studies attending to attitude change due to television viewing, a structured interview method may be employed. A multifaceted approach incorporating several methods of data collection may be appropriate.

Because television is virtually a universal experience for middle school youth, consuming as much as six to eight hours of young person's day, it's use and impact deserve careful study. The areas just outlined suggest many focal points for future research.

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THE EFFECTS A MIDDLE SCHOOL INTERDISCIPLINARY STAFFING PATTERN AND A MIDDLE SCHOOL DEPARTMENTALIZED STAFFING PATTERN HAS ON STUDENT ACHIEVEMENT LEVELS, PERCEPTIONS OF SCHOOL ENVIRONMENT, AND ATTITUDES TOWARD TEACHERS

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Introduction

Research has suggested that the type of staff organizational pattern does have an effect on educational variables (Davis, 1964). Middle School theorists and practitioners have been debating the advantages and disadvantages of Interdisciplinary Staff Organizational Patterns (ISOP) and Departmental Staff Organizational Patterns (DSOP) to arrive at the most advantageous staffing pattern for teaching the transescent learner. These theoretical debates have been based primarily on subjective data because there is a lack of quality research on the effects ISOP and DSOP have on educational variables.

A search of middle school literature would find overwhelming support for implementing ISOP in the middle school. But a recent survey (Brook, 1977) shows a low level of ISOP implementation within the nation's middle schools. Perhaps this low level of ISOP implementation is due to the reluctance of middle school educators to follow an innovative staff organizational pattern without empirical research data indicating significant advantages of ISOP over the DSOP. This study will present scientifically controlled evaluative data on the different effects an Interdisciplinary Staff Organizational Pattern (ISOP) and a Departmental Staff Organizational Pattern (DSOP) have on student variables.

Hypotheses

The null hypotheses of the study are:

$H_0 1$. There will be no statistical difference ($p < .10$) in the students' attitudes toward teachers between the interdisciplinary unit from school (A) and a randomly selected control group from school (A) population as measured by pre- and post-tests of the Purdue Teacher Evaluation Scale.

$H_0 2$. There will be no statistical difference ($p < .05$) in students' perceptions of school environment between students of the interdisciplinary unit from school (A) and a randomly selected control group from school (A) population as measured by post-tests of the Perception of School Environment Scale.

H_o3. There will be no statistical difference ($p < .05$) in student achievement levels between students of the interdisciplinary unit from school (A) and a randomly selected control group from school (A) population as measured by pre- and post-tests of the California Achievement test.

Research On Interdisciplinary Programs In Middle Schools

Few scientifically controlled evaluative research studies have been conducted on the effects of the interdisciplinary program on the transescent learner. The findings of the studies conducted have mixed conclusions as to the value and effects of the ISOP treatment. Some of the research results relative to ISOP effects on student achievement levels show no significant differences from achievement levels of students in DSOP (Zimmerman, 1962; Smith, 1975; Jester, 1966). Other studies indicate significantly favorable achievement gains for ISOP over DSOP students in certain academic areas (Jester, 1966; Smith, 1975). One study (Noto, 1972) indicated in the findings that the DSOP showed better achievement gains than the ISOP for seventh grade students. Research dealing with ISOP and DSOP on the effects in the students' affective domain found no significant differences in the students' self-concept (Smith, 1975). To the author's knowledge, no studies have been conducted to evaluate the effect of ISOP and DSOP on students' perceptions of school climate or students' attitude toward teachers. To summarize, research on the two staffing patterns has been contradictary for achievement gains and practically non-existent for the affective domain.

A relatively similar educational concept to the middle school interdisciplinary programs were the core curricular programs of the 1940's and 50's. The research conducted comparing the effects of core programs to traditional programs indicate many of the same mixed findings as the former interdisciplinary research (Schwartz, 1959; Capehart, 1952; Davis, 1956; Fair, 1954; Flanders, 1958; Forlano, 1954; Luecking, 1956; Schmieder, 1956; Van Dyke, 1954 and Wrightstone, 1959).

Sample

The samples of this study were drawn from a population of 356 eighth grade students in a Mid-Western, suburban, open-concept junior high school. The treatment and control samples were drawn from the population within the same building.

The socio-economic levels of the sample students ranged from low-middle to high-middle. The majority of the students were from middle to upper-middle class homes. Many family units contained two working parents. Job roles were mainly in semi-skilled, skilled, or administrative positions.

The samples were balanced in relation to sex and ethnic origin. Approximately 7 percent of the sample's members were from a minority background.

School Personnel

The school's administration includes a principal and an assistant principal. There were three guidance counselors on the staff as well as 42 regular classroom teachers. Each subject discipline had a paid department chairperson who was released from classroom instructional time to carry out duties.

The student to teacher ratio was 27 to 1. Most of the teachers in the school held secondary certification within the State of Ohio.

School Organization

From the school's opening in 1974 to the fall of 1976, the staff organizational pattern followed a departmentalized staff design. In the fall of 1976, one interdisciplinary eighth grade unit was implemented, which was the treatment group of the research study. The remaining student population was taught under the Departmental Staff Organizational Pattern.

DSOP

The DSOP staff contains teachers from each of the subject disciplines. Each teacher had control group students for one 55 minute period every day of the week. The teachers in the DSOP did no group planning or team teaching. The students in the DSOP attended Unified Arts, Physical Education, and Music classes besides the academic classes.

ISOP

The ISOP staff consisted of four teachers, one from each subject discipline. None of the four teachers had prior interdisciplinary teaching experience. The 110 eighth grade students from the treatment group were in the interdisciplinary unit for four consecutive 55 minute periods. The other periods of the day the students were in Unified Arts, Physical Education, and Music classes.

Description Of Sampling Techniques

The treatment sample was selected by a stratified random sample technique. Eighth grade teachers who previously taught the students in the seventh grade identified students according to social and academic accomplishments and inefficacies. After the students were placed into these groups, equal numbers of students were randomly selected from each group section. It was the objective of this group of teachers to choose a true cross-section of the eighth grade student population.

The control group was randomly selected from the eighth grade student population by the use of a randomization table.

Research Design And Procedures

This study was conducted under a quasi-experimental research design. Pre/post-test and post-test only designs were used in the study. The pre/post-test design was used for analyzing the California Achievement Tests and Purdue Teacher Evaluation Scale. The Perception of School Environment Scale was analyzed with a post-test only design.

Table 1.1

PRE	POST
C.A.T. Treatment N = 86 Control N = 76	C.A.T. Treatment N = 89 Control N = 74
P.T.E.S. Treatment N = 86 Control N = 76	P.T.E.S. Treatment N = 89 Control N = 75
	P.O.S.E.S. Treatment N = 95 Control N = 75

In October of the 1976-77 school year, the pre-test of the C.A.T. and P.T.E.S. were given to the control and treatment groups. The instruments were given on the same day and time. In order to reduce the Hawthorne effect, each group was informed they were part of a study. Post-test of the C.A.T., P.T.E.S., and P.O.S.E.S. were given in May of 1977.

Analysis Techniques

With the use of the S.A.S. computer program, an analysis of variance was used to test the significant levels of the student variables being measured. The sub-scales of each instrument were also analyzed.

Instrumentation

Following is a brief description of the instruments used in the study.

- California Achievement Test, 1970 edition, Level 4. The C.A.T. generally measures:

    1. the ability to understand the meaning of the content material presented,

2. the performance of the student in applying rules, facts, concepts, conventions, and principles of problem solving in the basic curricular material, and

3. the level of performance of the student in using the tools of reading, mathematics, and language in progressively more difficult situations.

The treatment and control group completed the full battery of the test covering: reading vocabulary, reading comprehension, mathematics computation, mathematics concepts and problems, language mechanics, and language usage and structure.

- Purdue Teacher Evaluation Scale. The P.T.E.S. is a 60 item instrument designed to assess student's perceptions of their teachers. A four-point-continuous scale was used to score the instrument. P.T.E.S. contains six sub-scale teacher variables for analysis: ability to motivate students, ability to control subject matter orientation of teacher, student-teacher communication, teaching methods and procedures, and fairness of teacher. Table 1.2 indicates the reliability of P.T. E.S. by scale.

Table 1.2

Scale	N = 128 Teachers	Split-Half Correlations
1. Ability to Motivate Students		.90
2. Ability to Control Students		.91
3. Subject Matter Orientation		.90
4. Student-teacher Communication		.84
5. Teaching Methods and Procedures		.89
6. Fairness of Teacher		.83

- Perceptions of School Environment Scale. P.O.S.E.S. developed by the author is a 50 item instrument designed to assess student perceptions of school climate. Three sub-scales were generated from the total instrument.

1. Student perceptions of social peer interaction (10 items).
   Example: Other students in this school really do care about me.
   a) Agree
   b) Disagree

2. Student perceptions of the learning environment (15 items).
   Example: The things I am asked to study are of little or no interest to me.
   a) Agree
   b) Disagree

3. Student perceptions of school in general (25 items).
   Example: Being at school makes me feel nervous.
   a) Agree
   b) Disagree

Table 1.3 indicates the reliability of P.O.S.E.S. by scale and total instrument.

Table 1.3

Sub-Scale	N = 168	Coefficient Alpha Index of Reliability
Peer		.56
Learning		.73
School		.84
Total		.88

Results

$H_0 1$ Retained

The P.T.E.S. analysis on pre-test and post-test showed no significant ($p < 10$) difference between control and treatment groups on all sub-scales.

$H_0 2$ Rejected

P.O.S.E.S. results indicated a significant difference ($p < .05$) on the total instrument as well as on the "learning" and "school" sub-scales. (See Table 1.4.)

$H_0 3$ Rejected

The analysis of the C.A.T. pre-test data indicates no significant difference between the control and treatment student groups. Post-test analysis shows a significant difference ($p < .05$) in achievement gains in favor of the interdisciplinary treatment group. (See Table 1.5.)

Conclusions And Implications

The following conclusions can be drawn from the study findings.

1. Students taught under an ISOP will have greater gains in academic achievement than they would if taught under a DSOP.

2. Because pre- and post-test on the P.T.E.S. did not show a significant difference between the groups concerning their attitudes toward their teachers, it can be concluded that the teachers were not a major factor in the group difference in achievement and school attitude.

3. Students' attitudes toward their teachers are not a function of the type of staff organizational pattern followed.

4. A student's perception of school-climate will be enhanced to a greater degree under an ISOP than under a DSOP.

Table 1.4

PERCEPTION OF SCHOOL ENVIRONMENT SCALE

Group	N	Sub-Test	Means	S.D.
Treatment	95	Peers	7.1	1.6
Control	75	Peers	6.7	1.8
Treatment	95	School	15.5	4.7
Control	75	School	12.6	4.7
Treatment	95	Learning	10.4	2.4
Control	75	Learning	8.2	2.6
Treatment	95	Post-Total	33.01	7.5
Control	75	Post-Total	27.5	7.3

Dependent Variable	DF	S.S.	F	PR F
Peers	1	7.95	2.62	.10
School	1	358.90	15.86	.0001
Learning	1	187.49	28.84	.0001
P.O.S.E.S. (Total)	1	1257.33	22.55	.0001

Table 1.5

CALIFORNIA ACHIEVEMENT TEST

ANALYSIS OF VARIANCE
(Alpha = .05)

Effect		DF	S.S.	F	PR F
Group	=	1	4653.3	.49	.49
Student by Group	=	166	1565032.1	-	-
Test	=	1	54305.2	70.28	.001
Test by Group	=	1	3358.7	4.35	.0307
Student by Test Group	=	153	118223.6	-	-
Total	=	322			

Group	N	Test	Mean	S.D.
Treatment	86	Pre	505.5	70.8
Control	76	Pre	501.5	70.2
Treatment	89	Post	534.5	75.7
Control	74	Post	521.2	74.1

Note: Significant tested by Sturent-Neuman Kewls, Multiple Comparison Test at Alpha = 0.05.

A very important factor in this study is the control of the internal and external validity. Because both treatment and control group samples are within the same school, under the same principal leadership style, school climate, and other institutional variables, the findings of post-test data represent the difference between treatment and control variables and not the former variables between schools.

The findings of this study could have important implications for future middle school staff organizational patterns. If the results of the study can be generalized, middle school educators will have objective research data supporting the organization of staff into interdisciplinary patterns. If implementing Interdisciplinary Staff Organizational Patterns can improve students' achievement and perceived school climate over the Departmental Staff Organizational Patterns, these facts should present enough evidence for public educational leaders to re-evaluate middle school staffing patterns.

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THE EFFECT OF A STRIKE ON ORGANIZATIONAL CLIMATE AND LEADERSHIP: A STUDY OF A MIDDLE SCHOOL

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Introduction

Collective bargaining with teachers is a major issue with school administrators, according to a membership study done by the American Association of School Administrators (Education USA 1978). Two thirds of the administrators polled said collective bargaining had a negative effect on the quality of public education in their district (Education USA 1978). Couple this with the fact that teachers account for about one third of all fulltime state and local public employees in the United States and 69 percent of the teachers are members of labor organizations (Report on Education Research 1978), and it is plain to see that school administrators will continue to feel that collective bargaining is a major issue. Even though the frequency of strikes is down, the Census Bureau reports that work stoppages in public schools occurred 377 times in 1975-76 involving 167,136 employees and 1.7 million workdays (Report on Education Research 1978). A great deal has been written on why strikes occur and on how strikes are negotiated and settled, but very little is known about how strikes effect teachers and administrators after the "dust has settled." In this study, an analysis was made in a middle school of teacher-perceived school climate to determine the "human" costs of a strike.

The Research on Teacher Unionism

Until recently most of the research on teacher unionism has been less-than-empirical and very narrow in focus (Blum 1976). Even now much of the literature is prescriptive in nature (Barkelew, 1977: Andrews, 1969; National Elementary Principal, 1977). When not prescriptive in nature, the focus of much of the literature has been centered on a descriptive analysis of the teacher labor movement, (Klaus, 1969; Lieberman, 1966) and or on common elements of teacher negotiation process, (Bruno and Nelken, 1975, Blum, 1976).

Some of the more recent research has been concerned with the impact of collective bargaining. In particular, these studies have tried to assess the impact of collective bargaining on teacher salaries, (Kasper, 1970; Thornton, 1970; Baird and Landon, 1972) and on teacher professionalism (Corwin, 1965, Peterson, 1976). Finally, there is a small group of studies which have focused upon the changes that occur in teacher, administrator, and student attitudes as a result of a strike (Hashway, 1977; Willow, 1975; Nicholson and Hasstrom, 1974; and Miskel, 1974).

Most of these studies that deal with impact do not focus on the effects of a strike's aftermath on school climate, although some attempt has been made to assess the impact collective bargaining has had on decision making and school policy (Doherty, 1966; Doherty and Schweibel, 1972; Belasco and Alluto, 1972; Vaughan, 1976). This study is unique in that it looks at what impact a strike has on the teachers' perceptions of the school's operating procedures and the principal's leadership style after the strike is settled.

The effects of a strike on educational variables such as organizational climate has been hypothesized, but quality research to measure these effects has been limited, if not impossible to conduct. It is difficult to obtain unbiased pre-strike data to analyze post-strike effects for two reasons. First, it is virtually impossible to know when or even whether a school staff will go on strike. Secondly, if data is collected after indicators for a strike are present, the data may be biased by the attitudes a pending strike arouses. The research to be presented in this paper was able to overcome these two difficulties because the original intent of the research was not to study the effects of a strike. The original intent of the research was to study the effects an experimental curriculum program would have on selected student behaviors. At the time of the pre-testing, there were no indicators of the forthcoming strike. However, after the strike occurred, the usefulness of the un-biased, pre-strike data in the analysis of the effect of a strike on a school's climate and on the principal's leadership style as measured by the post-test was apparent.

Method

Description of the Research Design: The original focus of the research study was to evaluate the impact of the experimental curriculum unit being implemented in middle school A. As the analysis of the pre and post tests was completed, some changes in perceived organizational climate and leadership were noticed.

A three-cell matrix of comparison was used in analyzing data from the two instruments. A pre-test/post-test was administered in school A and a post test only was administered in comparison school B.

	Pre	Post
School A	37 s	38 s
School B	X	46 s

s - subjects

The Staff Development School Climate Questionnaire and the Leadership Adaptability Style Inventory were given once in the month of October and again in the month of April 1977. The tests for school B were given at the same time as the post tests in school A. In the month of November, a two-week district-wide strike occurred. After the strike, the data shows marked differences in teacher perceptions of School Climate and Leadership. The authors interviewed 40% of school A staff to find out what the teachers perceived as the reason for the drop in climate scores. All of the faculty members in school A who were interviewed indicated that the climate changed because of the strike. Their perceptions of the principal's leadership style also changed because of the strike.

Subjects: The subjects tested consisted of 37 middle school teachers (18 males and 19 females). They were asked to fill out the Staff Development School Climate Questionnaire which yields a profile of perceived school climate. As has already been mentioned, the subjects were members of a faculty in a middle-school engaged in an innovative program designed to coordinate all academic subjects into an experimental unit. To add perspective, the SDSCQ was administered to a second middle school in the district to obtain a second school profile of teacher-perceived climate. Forty-six faculty members (21 males and 25 females) in this "control" school were tested. Interviews were later conducted in the study school after the post test to help explain the findings.

Measures: The Staff Development School Climate Questionnaire (SDSCQ), developed by one of the authors, contains subscales on five dimensions: (a) Communications; (b) Innovativeness; (c) Advocacy; (d) Decision-Making; and (e) Attitude toward Staff Development. A six-point Likert-type scale (Strongly Disagree - Strongly Agree) was used to assess the attitude levels of the subjects on each of the 58 items. A low score on any item (and correspondingly on any subscale) would indicate that the respondent did not agree with the positively stated item. Some items (4, 10, 17, 42) were reversed to add variation to the questionnaire and keep the respondent "honest".

The subscale of Communication (13 items) was designed to measure respondents' perceptions as to how well information is shared among groups such as the school board, the central office, the building principal, and teachers. (Example: Teachers in this school feel free to talk to each other about their work). Communication is defined as the listening to concerns as well as the ease with which ideas are exchanged among groups and cliques.

The subscale of Innovativeness (12 items) measures the respondents' perceptions of how well educational innovations have been supported in the past by the school board, the central office, the building principal, and teachers. (Example: The faculty at this school are generally quick to adopt improved teaching methods). Innovation is defined as the use of new ideas in the classroom.

The subscale of Advocacy (13 items) measure the respondents' perceptions concerning the rapport and professionalism that exists among professional staff members. (Example: The principal makes a real effort to improve working conditions at this school). Advocacy also connotes the concerns for teacher welfare that are demonstrated by the school board, central office administrators, and the building principal.

The subscale of Decision-Making (9 items) measures the respondents' perceptions as to the amount of opportunity there is for input into decisions made at this school board level, central office level, and building principal level. (Example: The teachers in this building are generally involved in decisions related to their work).

The subscale of *Attitude toward Staff Development* (12 items) measures attitudes the individual has toward inservice education in general and specific inservice activities sponsored by the school system. This subscale includes three themes which are broadly grouped in terms of attitudes in relation to Individual Growth, Classroom Application, and Application to System Needs. A relationship was sought between the relevancy and utility of inservice activities as perceived by teacher participants in the activities and subsequent use of what was learned by individual teachers in classroom situations. (Example: Staff development/inservice activities in this district contribute to the improvement of the curriculum).

It should be noted that although attitude toward inservice activities is not usually thought of as a climate indicator by most authors reporting on climate, this subscale showed a high correlation with the traditional climate indicators such as communication, decision-making and openness to innovations.

The original SDSCQ instrument contained a total of 63 items. When psychometric analyses of the data were completed, this number was reduced to *58* items within the five subscales. Internal consistency reliability coefficients (Cronbach, 1961) for the revised instrument by subscale were: (a) *Communication* .84; (b) *Innovativeness* .87; (c) *Advocacy* .83; (d) *Decision-making* .81; and (e) *Attitude Toward Staff Development* .92. Within each subscale the internal consistency was quite acceptable.

The *L*eadership *A*daptability *S*tyle *I*nventory contains 12 items with four multiple choice responses. The LASI gives hypothetical management situations and asks the respondent to predict what the principal would do in that particular situation. Through the responses, a frequency count of predictions is gained that gives a profile of the perceived leadership style of the principal. That style can be one of four types; 1) High on task behavior-Low on relationship behavior, 2) High on task behavior - High on relationship behavior, 3) Low on task behavior - High on relationship behavior, 4) Low on task behavior - Low on relationship behavior.

Description of Analysis Techniques: Using the SAS computer program on the pre and post scores of the SDSCQ for school A and between post scores of School A and B, an univariate analysis of variance was performed to test for significance. To compensate for small sample size and to judge for practical significance, confidence intervals were computed.

Results

As the *pre-test* scores indicate, most teachers felt that communication in the fall was fairly open; there was support for innovative ideas; there was concern for teacher welfare and opportunity for input into school decisions; and inservice activities has some relevancy to teacher classroom needs. Not only was the climate fairly open, but there was, furthermore, very little difference of opinion among teachers on four of the five subscales as indicated by the low standard deviation scores.

Table 1

Sub-Scale	Items	Pre Test Mean	SD	N	Post Test Mean	SD	N	T-Tests	Confidence Intervals Mean Difference
Communication	(12)	55.93	4.5	38	48.19	6.8	37	0.0001	7.79 ± 2.62
Innovation	(12)	49.48	6.2	38	43.89	7.0	37	0.0011	5.59 ± 3.00
Advocacy	(13)	55.81	4.6	38	49.04	6.8	37	0.0001	6.77 ± 2.63
Decision Making	(9)	41.58	3.4	38	35.72	5.4	37	0.0001	5.86 ± 2.05
Inservice	(12)	44.47	11.0	38	37.21	12.0	87	0.0136	7.26 ± 5.21

The univariate analysis of pre and post test SDSCQ climate scores of school A shows a significant drop in positive attitudes (Table 1) on all five attitude subscales of Communication, Innovation, Advocacy, Decision-Making and Attitude toward Staff Development to the .01 level of significance. After the strike, the climate was not perceived by teachers as quite so open or supportive. The post test mean scores indicate that communication of ideas and information was curtailed. Teachers perceived less support for innovative ideas, less opportunity for input into school decision-making, and less concern for faculty welfare. They also perceived that inservice activities were less relevant.

Confidence intervals reveal in the subscales of Communication, Innovation, Advocacy, and Decision-Making that 95% of the time other sample populations tested fall within a small mean difference range (cut off being 3). In the subscale of Attitudes toward Staff Development, the confidence level is not respectable because of high standard deviations.

The Univariate analysis comparing post climate scores of school A with the post climate scores of school B show no significance differences on the attitude subscales of Communication, Innovations, Advocacy, and Staff Development (See Table 2).A signigicant difference was found on the attitudes toward Decision-Making Scale. (.002 level of significance).

Table 2

Sub Scale	Items	School A Post Test Mean	SD	N	School B Post Test Mean	SD	N	T-Test
Communication	(12)	48.19	6.8	37	46.17	7.3	46	.219
Innovation	(12)	43.89	7.0	37	43.41	7.4	46	.773
Advocacy	(13)	49.04	6.8	37	47.06	7.6	46	.241
Decision Making	(9)	35.72	5.4	37	31.77	5.5	46	.002*
Staff Development	(12)	37.21	12.0	37	37.79	7.6	46	.795

Since the scores for teachers in School B do not differ significantly from scores of teachers in School A, the analysis indicates that the perceptions of teachers in School A may reflect teacher perceptions of school climate throughout the district. Teachers in School B feel that they have even less input into the decisions made in their school than in School A, even though teachers in School A feel that they do not have as much input into school decisions as they did have before the strike.

Because the questionnaire asked the respondent to make judgements about who supported innovations or facilitated decision making (i.e. the faculty are generally quick to adopt improved teacher methods, or the principal of this school is generally quick to support improved teaching methods) an univariate analysis as one on all four subgroups of Peers, Principal, Central Office, and School Board contained in the SDSCQ Climate Questionnaire. (See Table 3)

Table 3

Sub Groups	Items	Pre-Test	SD	N	Post Test	SD	N	T-Test
Peers	(15)	69.51	4.9	38	63.93	7.5	37	0.007
Principal	(15)	32.33	6.3	38	67.13	11.5	37	0.0001
Central Office	(9)	28.73	6.6	38	25.03	8.5	37	0.052
School Board	(9)	24.50	6.9	38	22.74	7.1	37	0.312

It can be seen that attitudes changed significantly toward peers and the school principal, slightly toward the central office and very little towards the school board. The pre and post test scores indicate that the principal was no longer perceived by teachers as communicating ideas freely, supporting their innovative ideas, concerned for their welfare, and allowing for much input into school decisions. It is clear that the relationship between the faculty and the principal had changed significantly. Relationships among peers changed along these same dimensions because some teachers participated in the strike while others did not.

A chi square analysis of the Leadership Adapability Style Inventory shows a significant change in the way the faculty perceived the principal leadership style. (See Table 4)

Table 4

Leadership Style	N	Obtained Raw Scores (0)	Expected Scores (E)	O-E	$(O-E)^2$	X^2
Pre Test						
HTLR	38	58	62.4	4.4	19.36	.31
HTHR	38	177	166.5	10.5	110.22	.66
LTHR	38	137	126.3	10.7	114.49	.90
LTLR	38	25	41.6	16.6	275.56	6.62
Post Test						
HTLP	37	74	69.5	4.5	20.25	.29
HTHR	37	175	185.4	10.4	108.16	.58
LTHR	37	130	140.6	10.6	112.36	.79
LTLR	37	63	46	16.7	278.89	6.02
df=3					Total	16.17
					Sig.	.05

Conclusions And Implications

Conclusions: What can be said from these findings is that: 1) The strike drastically changed the way teachers perceived the school climate in School A, in School B, and probably in the rest of the district as well. By noting the increase in standard deviation scores, it is easy to see that teacher perceptions became more polarized. 2) Most change occurred in perceptions related to faculty peer relationships and the perceptions of the principal's accessibility and receptivity. 3) The central office and school board suffered minimal loss of credibility perhaps because, as the scores indicate, their credibility was low to start with. It is logical and predictable that a strike would cause a change in the way teachers perceive certain school operations, principal behavior, and central office and school board procedures. The authors feel this study is interesting because: 1) there is hard data to substantiate the relationship between school climate and a teacher strike and 2) all five climate indicators were changed as a result of a teacher strike. It would seem predictable that the subscales of decision-making and advocacy would change. However, perceived support for innovative classroom techniques declined, too. Teachers became less receptive towards inservice activities. They saw inservice activities as less relevant to their classroom needs. The free sharing of ideas and information was perceived as less probable and possible. This drop in communication also shows less trust among colleagues and the gradual formation of cliques and informal groups among school staff members.

The interviews of faculty members that were conducted to learn more about the changes in teachers' perceptions of school climate showed not only that the strike changed teachers' feelings about school climate; it also gave the authors more understanding about what the principal did to change his leadership style which contributed to teachers feeling isolated and less involved in decision-making. After the strike, the principal spent less time in classrooms, in the hall, and in the faculty lounge but instead, spent large amounts of time in his office. After the strike, when school meetings were held, his behavior was curt, and decisions were "told" to the faculty rather than discussed with the faculty. What had once been trustful, easy-flowing, congenial relationships between the principal and the faculty, individually and collectively, became labored and formal. In other words, the principal either left faculty members alone or told them what he wanted done in a very directive "top-down" manner.

It should be noted that principals in general do not have much to do with collective bargaining; nor did this particular principal. The interviews revealed that both teachers and the principal became "disappointed" with the behavior and motives of the other during the period of the strike, and this disappointment was manifested and harboured for months after the strike and is reflected in the drop in the climate index.

Because some teachers did not strike and instead crossed the picket lines along with the principal, hard feelings and resentments resulted. These resentments are manifested in lower climate scores and larger standard deviation scores. While the bargaining took place (for over two weeks), mistrust, resentment and ill feelings continued to develop at the building level. Important interpersonal relationships needed to reach consensus, maintain camaraderie, and maintain commitment to building and district goals were definitely strained between the principal and teachers and between the teachers who went on strike and the teachers who didn't.

Implications: The importance of school climate cannot be stressed enough*. If interpersonal communication among peers, between principal and teachers, teachers and the central office, teachers and the school board declines, misunderstanding and conflict will tend to increase, which is what happened in School A. If there is a decline in perceived openness to innovative techniques and attitudes towards inservice, then it is likely that those activities will be less efficient and effective. If there is a lack of teacher input into the decision-making process of the school, then teacher commitment to the implementation of those decisions will be less likely. In short, the school with a lower climate index will show less enthusiasm, efficiency, teacher satisfaction, and, as research has shown, probably decreased effectiveness with students. (Hashway,. 1977; Brookover, et al, 1978).

In summary, a strike costs a system more than money. It inevitably costs the district the goodwill, credibility and trust that must be present between teachers and administrators and among teachers to truly make a school building a humane and productive place.

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*For an elaboration of the importance of school climate see Zigarmi and Edeburn, 1978; Fox, et. al. 1973; Breckenridge 1976.

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THE RELATIONSHIP BETWEEN THE ORGANIZATIONAL STRUCTURE OF MIDDLE SCHOOLS AND JUNIOR HIGH SCHOOLS AND ITS EFFECT ON THE ATTITUDE OF TEACHERS AND STUDENTS TOWARD THE SCHOOL

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Introduction

The purpose of this study was to determine if the grade level organizational structure and related structural principles of middle schools and junior high schools have any effect on the attitudes of teachers and students toward the school.

There has been considerable dissatisfaction with the traditional junior high school in educating boys and girls of the emerging adolescent years (Eichhorn, 1966). As a result, the middle school movement has grown in recent years to create a new organizational structure and a different philosophy of educating boys and girls of the "transesence" age.

The critics of the junior high school maintain that the junior high school is modeled too much on the senior high school, and that boys and girls of this transition period need a program designed specifically to meet their needs. On the other hand, advocates of the junior high school take the position that the middle school is just a "fad" and does not really present an alternative to the conventional program. (Doob, 1975).

The present study looked at the dependent variables of teacher and student attitudes to determine the effect of the organizational structure of a middle school and junior high school on the attitude of teachers and students toward the school. Therefore, this writer reviewed the available literature on the subject of teacher and student attitudes in middle schools and junior high schools. The approach was to review them separately. There was a noticeable lack of literature on the subject of teacher attitudes in middle schools and junior high schools.

The Bryan and Erickson (1970) study indicated slight differences in middle school and junior high school teacher attitudes toward the organizational structure. The researchers felt the differences were slight and utilitarian in nature. The differences were not significant and perhaps this can be attributed to the newness of the organizational structure of the middle school as well as the experience level of the middle school teachers in the study.

Gatewood (1970) concluded that the implementation of the middle school concept either by middle schools or junior high schools exist more in ideal than reality. Gatewood's study added to the theory that the structure of an organization and its suggested related functions does not in reality mean that the teachers have perceived or internalized the functions correctly.

Evans (1970) used the Minnesota Teacher Attitude Inventory in Fort Worth, Texas, to measure teacher-pupil rapport. The higher MTAI scores correlate with democratic attitudes. Teachers at the two selected middle schools scored significantly higher than teachers at the two matched junior high schools. It is significant also that middle school teachers with two years experience in the middle school scored higher than those with one year of experience.

Glissmeyer (1969) conducted a study in California comparing sixth grade programs in elementary schools and middle schools. The middle school teachers exhibited a more positive attitude toward their program than elementary teachers. Howell (1969) developed hypotheses in a school in Iowa that had been converted from a junior high school to a middle school. Howell's findings as the Principal of the school, indicated an over all improvement in teacher attitude.

Student attitudes are difficult to measure because of the many variables that affect attitudes. It is important to consider the issue of whether structural differences have any effect on the attitude of students in middle schools and junior high schools. As previously pointed out, there was very little literature on the subject of teacher attitudes in middle schools and junior high schools. Similarly, this is also the case with student attitudes.

Case (1970) indicated that structural changes in a middle school do not have a positive effect on the attitudes of students. Likewise, Wood's (1973) study would not support reorganization and indicated that the attitudes of junior high school students were at least as positive as middle school students. Erickson and Bryan (1970) found that junior high school students were more positive than middle school students on greater involvement in the school and attachment and concern for their school. Odetola, Erickson, Bryan and Walker (1972) concluded that students taught by teams had more negative attitudes than students taught by a single teacher.

Schoo, however, (1970) found that the best organizational structure for emerging adolescents is a grade five through eight plan. His study revealed significant differences between the attitude of students in five-eight patterns and those in junior high schools. Trauschke (1970), in a study in Miami, Florida, found eight significant differences favoring the middle school out of 30 comparisons, although none of the comparisons favored the junior high school. The students at each grade level five-eight had a more favorable attitude toward school than the junior high students. Rankin (1969) concluded that similarities out number differences but the differences indicated that the middle school structure helped to establish a healthier student attitude.

In this study, the researcher sought to examine the differential effects of middle school and junior high school organizations on the attitude of teachers and students toward school. The independent variable or presumed cause in this study was organizational structure and the dependent variables or presumed effect were (1) teacher attitude toward school (morale) and (2) student attitude toward school (morale).

This study tested the following null hypotheses: (1) There is no significant differences as a result of organizational structure between the attitudes of middle school teachers and junior high school teachers toward school (morale). (2) There is no significant difference as a result of organizational structure between the attitudes of junior high school students and middle school students toward school (morale).

Deduced consequences are as follows:

1. There is no significant difference between the attitudes of teachers in a middle school and teachers in a junior high school as measured by the Purdue Teacher Opinionaire.

2. There is no significant difference in the attitudes of students in a middle school and junior high school toward the school as measured by the National Study of School Evaluation Student Opinion Inventory.

3. Organizational structure has no effect on the attitudes of teachers and students toward their schools as measured by the Purdue Teacher Opinionaire and the National Study of School Evaluation Student Opinion Inventory.

PROCEDURES

The population in this study included junior high schools and middle schools located in metropolitan Hamilton County, Ohio. This area is located on the Ohio River in the Midwestern part of the United States and its most important city is Cincinnati. The Cincinnati Public Schools were excluded from the study because there are no middle schools in the Cincinnati School District. Another consideration for excluding the Cincinnati Schools was the impending teacher strike which did occur at the time data were being collected.

Middle schools for this study were defined as having an organizational structure that has at least three grades but no more than four grades and includes grade six but excludes grade nine. Junior high schools were defined as a school organizational structure of at least two grades but no more than three grades and excluding grade six.

Criteria which were most efficient in distinguishing the middle schools in the population from the Junior high schools in the population are as follows:

1. Grade level organization excludes grade nine but includes grade six.
2. The instructional professional staff must have at least 30% of elementary certified staff.
3. The instructional time schedule is designed for flexible scheduling.

Schools meeting the three distinguishing criteria were called middle schools; schools not meeting these criteria were called junior high schools. Middle schools that were selected failed to meet any of the distinguishing criteria of junior high schools; those excluded met some but not all of the three criteria.

The sample within this population was determined by randomly selecting 40 teachers from middle schools and 40 teachers from junior high schools that were representative of the metropolitan area. Teacher attitude toward school was measured for the middle school teachers and the junior high school teachers using The Purdue Teacher Opinionaire. Additionally, ten student classrooms from middle schools and junior high schools were selected to measure student attitudes toward their schools using the National Study of School Evaluation Student Opinion Inventory. A total of 20 classrooms were selected.

The Purdue Teacher Opinionaire (1970) was used to measure teacher attitude or morale toward middle school and junior high school. The Purdue Teacher Opinionaire yields a general score indicating a general morale level, and also provides meaningful sub scores for dimensions of morale. The ten dimensions are as follows:

1. Teacher rapport with principal
2. Satisfaction with teaching
3. Rapport among teachers
4. Teacher salary
5. Teacher load
6. Curriculum
7. Teacher status
8. Community support of education
9. School facilities and services
10. Community pressures

The National Study of School Evaluation Student Opinion Inventory (1974) was used to measure student attitudes toward middle school and junior high school. The Student Opinion Inventory measures students attitudes and morale. The instrument is designed to yield a general measure of student attitude toward the school program, and the items can be grouped to provide a measure of each of the six subscales comprising the instrument. The subscales are as follows:

1. Student-Teacher
2. Student-Counselor
3. Student-Administration
4. Student-Curriculum
5. Student-Participation
6. Student-School image

ANALYSIS OF THE DATA

The scores obtained from The Purdue Opinion Survey and the Student Opinion Survey were analyzed using two multivariate analyses of variance tests: one comparing the factors comprising the attitude scores of middle school and junior high school students and one comparing the factors comprising the attitude scores of middle school and junior high school teachers. The dimensional subscales of each instrument were used as dependent variables to determine the effect on the attitudes of teachers and students toward school the independent variable: organizational structure. The MANOVA provided statistical data for each dimensional subscale. Teacher cell sizes were equivalent in that 40 scores of middle school teacher attitudes and 40 scores of junior high school teacher attitudes toward school were obtained. 254 middle school student attitude scores and 232 junior high school student attitude scores were obtained.

The multivariate analysis of variance was used to determine (a) if there is a significant difference between the linear combination of factors comprising teacher opinion scores and factors comprising student opinion scores as a result of organizational structure, and (b) if there is a significant difference, which scores or set of scores is the primary contributor to the significant difference. A 95% confidence level was used to determine acceptance or rejection of the null hypothesis.

The results of the multivariate test of significance for the effect of school organizational structure on the factors comprising student attitude are presented in Table I.

Table I

F Ratio for Multivariate Test of Equality of Mean Vectors: Student Attitude Factors by School Organization Type.

Source- of Variance	F	df	P Less Than
Organizational Structure	18.5703	6 and 479	.0001

The results of the multivariate analysis of variance on dimensions of student attitude scores revealed a significant difference between the middle and junior high school groups at the .0001 level.

The results of univariate F tests conducted to identify the factors contributing to the significance of the multivariate F ratio are shown in Table II.

TABLE II

Univariate and Step Down F Ratio on Student
Factor Survey Contributing to Significance of
Organizational Structure Main Effect

VARIABLE	Hypothesis Mean Square	Univariate F	P Less Than	Step Down F Ratio	P Less Than
Factor 1					
Student-Teacher	7.2318	12.7325	*0.0004	12.7325	0.0004
Factor 2					
Student-Counselor	105.3080	62.2777	*0.0001	79.1125	0.0001
Factor 3					
Student-Administration	5.5575	7.3649	*0.0069	7.6885	0.0058
Factor 4					
Student-Curriculum	1.5578	2.8586	0.0915	0.0068	0.9345
Factor 5					
Student-Participation	10.7650	15.7225	*0.0001	7.5401	0.0063
Factor 6					
Student-School Image	2.7099	3.9288	*0.0481	0.0206	0.8860

* Level of Significance

The significant differences indicate that middle school students yielded higher scores toward school than junior high school students in variables related to student-teacher relationships, student-administration, student participation and student school image. Additionally, the differences reveal that junior high school students yielded higher scores than middle school students on student-counselor relations.

The results of the multivariate test of significance for the effect of school organizational structure on the factors comprising teacher attitude are presented in Table III.

Table III

F Ratio for Multivariate Test of Equality of Mean Vectors: Student Attitude Factors by School Organizational Type.

Source of Variance	F	df	P Less Than
Organizational Structure	3.6132	10 and 67.000	.0007

The results of the multivariate analysis of variance on dimensions of teacher attitude scores revealed a significant difference between the middle and junior high school groups at the .0007 level.

The results of univariate F tests conducted to identify the factors contributing to the significance of the multivariate F ration are shown in Table IV.

TABLE IV

Univariate and Step Down F Ratio on Teacher Factor Survey Contributing to Significance of Organizational Structure Main Effect

VARIABLE	Hypothesis Mean Square	Univariate F	P Less Than	Step Down F Ratio	P Less Than
Factor 1 Rapport with Principal	0.0026	0.0093	0.9236	0.0093	0.9236
Factor 2 Satisfaction with Teaching	0.0000	0.0001	0.9905	0.0002	0.9901
Factor 3 Rapport Among Teachers	1.2489	6.5375	*0.0126	7.0584	0.0097
Factor 4 Teacher Salaries	4.2373	7.1817	*0.0091	17.0221	0.0001
Factor 5 Teacher Load	0.0152	0.0502	0.8233	0.0447	0.8332
Factor 6 Curriculum	1.6082	4.5115	*0.0370	2.0292	0.1587
Factor 7 Teacher Status	2.1633	4.1235	*0.0458	2.3708	0.1282
Factor 8 Community Support	4.0621	10.5274	*0.0018	4.4176	0.0393
Factor 9 School Facility	0.0328	0.0905	0.7644	0.0174	0.8954
Factor 10 Community Pressures	0.0005	0.0022	0.9630	0.4073	0.5256

* Level of Significance

The significant differences indicate that middle school teachers yielded higher scores toward school than junior high school teachers in items related to teacher salaries, teacher status, and community support. Additionally, the differences reveal that junior high school teachers have higher scores toward school than middle school teachers in variables such as curriculum issues and rapport among teachers.

CONCLUSIONS AND IMPLICATIONS

The analysis of the data led the researcher to the following conclusions:

1. The statistical results of employing the MANOVA to analyze student scores of the National Study of School Evaluation instrument rejected the null hypothesis that there is no significant difference in the attitudes of students in middle schools and junior high schools toward school.
2. The differences between the attitudes of middle school and junior high school students favor the middle school organizational structure on four dependent variables: student-teacher relationships, student-administration relationships, student participation, and student school image.
3. The differences between the attitudes of middle school and junior high school students favor the junior high school organizational structure for one dependent variable: student-counselor relationships.

4. The statistical results of employing the MANOVA to analyze teacher scores of The Purdue Teacher Opinionaire rejected the null hypothesis that there is no significant difference in the attitudes of teachers in middle schools and junior high schools toward school.
5. The differences between the attitudes of middle school and junior high school teachers support the middle school organizational structure on three dependent variables: teacher salaries, teacher status, and community support.
6. The differences between the attitudes of middle school and junior high school teachers support the junior high school organizational structure on two dependent variables: rapport among teachers and curriculum issues.

The results of this study have implications for teachers, administrators and board of education members responsible for developing educational policies for emerging adolescents.

Middle school and junior high school teachers should be aware that the middle school organizational structure may have an effect on the attitude of students toward school. The significant difference found in the dependent variable of student-counselor relationships supporting the junior high school organizational structure needs further research.

Significant differences in the attitudes of teachers tended to support the middle school organizational structure. However, one-half of the teacher variables were found to be not significant. This study did not control for the length of time a teacher had been employed in a middle or junior high school. Further research on the attitudes of teachers toward middle and junior high school organizations should control for the length of time a teacher has worked in a given structure.

It could be concluded from this study that the middle school organizational structure had a greater effect on the attitudes of students than upon those of teachers. It is therefore, profitable to employ analyses that examine multiple dependent dimensions of attitude rather than single, generalized attitude scores. Future research needs to examine more closely the effect of organizational structure on specific dimensions of attitude.

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THE EFFECT OF COGNITIVE STYLE AND CLASSROOM CLIMATE ON STUDENTS' ACHIEVEMENT AND ATTITUDES IN FIRST YEAR ALGEBRA

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Introduction

According to Gagne (1976) each act of learning involves a number of internal processes (i.e., motivation, attention, rehearsal), the inputs to which come partly from the learner and partly from the learner's external environment. The teacher needs to be aware of what these inputs are and of the specific influence he/she can exert on them in order to provide successful instruction. Consequently, this study has attempted to investigate the effect of two such inputs, cognitive style and classroom climate, as they relate to students' achievement and attitude in first-year algebra.

Background

Cognitive Style. One input, internal to the learner, is Witkin's (1954, 1962/1974a) concept of field-dependence--field-independence. It is generally measured by some form of the Embedded Figures or Rod-and-Frame Tests, so as to distinguish between subjects who are able to isolate an item from the overall field (field-independent) and subjects whose perceptions are dominated by the overall organization of the field (field-dependent). Theoretically, field-independence--dependence may be considered as an expression of a more inclusive individual difference dimension--an articulated-global continuum. Witkin, et. al. (1975, pp. 13-14) state:

> Analysis and structuring are complimentary aspects of articulation. The person who experiences in an articulated fashion tends to perceive items as discrete from background, when the field is organized, and to impose structure on a field, and so perceive it as

> organized, when the field has relatively little inherent structure. In contrast, it may be said that experience is more global when it accords with the overall character of the prevailing field as given, and involves less intervention of mediators, such as analysis and structuring. . .
>
> . . . Because what is at issue is the characteristic approach the person brings with him to a wide range of situations, we called it his 'style,' and because the approach encompasses both his perceptual and intellectual activities, we spoke of it as his 'cognitive' style.

Evidence exists showing a definite relationship between cognitive style and certain intellectual, social, and personal characteristics. For example, field-independent persons are generally more efficient in concept attainment tasks than field-dependent persons (Dickstein, 1968; Frederick, 1968; Nelson, 1972). And in an investigation of the implications of cognitive styles for mathematics education, Spitler (1970, p. 66) concluded:

> In summary, the learning of mathematics would seem to make frequent demands for field-independence. This fact is substantiated by the number of studies linking mathematical aptitude and achievement with field-independence.

In addition, cross-cultural research has shown that members of groups which stress social conformity to family, religious and political authority, and group identification tend to be more field-dependent than members of groups which stress questioning of convention and an individual identity (Dershowitz, 1971; Witkin, et. al., 1974b; Ramirez and Price-Williams, 1974). Research also indicates that field-dependent persons have a less developed sense of separate identity, manifesting itself in their reliance on external sources for definitions of their attitudes, judgements, and sentiments (Witkin, 1965) and in their greater attitude shift in the face of incongruity (McCarrey, Dayhaw, and Chagnon, 1971). In another line of investigation, field-independents have been shown to use the more specialized and differentiated defenses of isolation and intellectualization while field-dependents tend to use repression and denial (Bertini, 1961; Witkin, et. al., 1962/1974a). Finally, evidence also indicates that cognitive style is correlated with interpersonal functioning. According to Witkin and Goodenough (1976, p.1):

> . . . Field-dependent people have an interpersonal orientation: they show strong interest in others, prefer to be physically close to people, are emotionally open and gravitate toward social situations. Field-independent people have an impersonal orientation: they are not very interested in others, show both physical and psychological distancing from people and prefer nonsocial situations.

In summary, research has shown that cognitive style is related to students' academic development, but it has led to few conclusions concerning this relationship. For example, while one may conclude that field-dependent students are not as capable, or are at a disadvantage, in the acquisition of mathematical concepts, one may not conclude that field-dependent students cannot overcome this disadvantage. Considering the interpersonal orientation of field-dependent students, it is plausible to expect them to feel more comfortable and to perform better in a setting which allows them to rely on their social skills.

Classroom Climate. As the teacher instructs the students, he/she is constantly interacting with them as individuals and as a group. In the course of this interaction the teacher is instrumental in establishing a climate within the class. Flanders has categorized this climate as either direct, minimizing the freedom of the student to respond, or indirect, maximizing the freedom of the student to respond. He states:

> Certain teacher statements inhibit student participation and others encourage it. Restrictions occur when a teacher lectures or

> expresses his own opinions, gives directions, gives criticism, or justifies the use of his own authority. He is directive in order to focus on a particular idea or problem, in order to achieve compliance, or in order to correct misbehavior. In doing this he will talk more and take a more dominant role in the classroom.
>
> Expansion occurs when a teacher asks questions, clarifies student ideas and uses them in problem solving, praises and encourages student action, or makes constructive interpretations of student feelings or attitudes. These statements express teacher authority indirectly through their support of selected patterns of student behavior. The teacher assumes a less dominant posture, and the proportion of student talk increases (Flanders; 1967, p. 221).

Flanders (1951) found that students in extended direct settings show behaviors of hostility toward self or the teacher, withdrawal, apathy, agressiveness, and even emotional disintegration. Students in extended indirect settings, however, show behaviors of problem solving orientation, decreased interpersonal anxiety, integration and even emotional readjustment. Medley and Mitzel (1959) found that pupil-teacher rapport was related to emotional climate, and Pankratz (1967) found that teachers who ranked high in terms of principals' perceptions, students' perceptions and self-perceptions were more indirect than teachers who scored low on these three measures.

While there is little evidence concerning the relationship between cognitive style and student achievement (Wright and Nuthall, 1970; Dunkin and Biddle, 1974), it does appear that in settings where there is an excessive amount of directive teacher behavior, students tend to feel less at ease, under more pressure, supply poorer evaluations of the teacher, and possible escape by withdrawal. Students in an extended indirect setting, on the other hand, seem to rate the teacher higher, contribute more to the problem-solving task, and show greater social integration.

Rationale and Hypotheses

Considering the evidence on academic achievement and cognitive style, one would probably conclude that field-independent students would score higher than field-dependent students on standardized tests in algebra. However, if one considers that field-dependents are more sensitive to the human element in the environment, then taking this sensitivity into consideration may account for the apparent superiority of field-independent students. For example, Ruble and Nakamura (1972) concluded that field-dependent subjects may be more effective in tasks or situations that involve relevant social cues, and Witkin, et. al. (1975, p. 83) claim:

> It has been observed repeatedly, as we have seen, that field-dependent students are not likely to do as well in mathematics and the sciences as more field-independent students. However, to this statement must be added the qualification: 'with the present ways of teaching these disciplines.'

Based on the assumption that classroom climate created by indirect teacher behavior closely resembles the environment a field-dependent person is familiar with, and based on the behavior field-dependents tend to exhibit in a threatening environment, the first hypothesis which was tested is:

1. Field-dependent students taught in an indirect setting will score significantly higher than field-dependent students taught in a direct setting on achievement and attitudes in first-year algebra after adjustment for pretest differences.

Based on the findings of Ned Flanders and his associates that interpersonal anxiety takes priority over behavior oriented toward the achievement problem and that directive teacher behaviors elicit students' behavior of hostility, withdrawal, apathy, and aggressiveness, the second hypothesis which was tested is:

2. Students taught in the indirect setting will score higher than students taught in the direct setting on the attitude inventory after adjustment for pretest differences.

Based on the assumption that field-dependent students taught in an indirect setting can overcome their apparent inferiority to field-independent students on analytic tasks, the third hypothesis which was tested is:

3. There will be no significant differences between field-independent students and field-dependent students, taught in an indirect setting, on achievement after adjustment for pretest differences.

Based on the assumption that field-independent students can function equally well in either setting (direct or indirect), while field-dependent students can only function better in the indirect setting, the last hypothesis which was tested is:

4. Field-independent students will score significantly higher on the achievement test than the field-dependent students, taught in the direct setting, after adjustment for pretest differences.

Method

Setting. Permission was obtained from the principals, teachers and students of ten schools in the Greater Cincinnati Area, with the stipulation that all participants remain anonymous. The original sample consisted of 718 students, taught by 19 teachers, from these 10 schools. The parent community of these schools was diverse with respect to occupation, income, and education. In general, however, all schools could be described as being in middle-class neighborhoods. The student bodies ranged from 80 to 100 percent white, with from 50 to 90 percent of the students expressing desire to continue formal education after graduation.

Of the 19 teachers, 10 were female and 9 were male. All were white. Their teaching experience ranged from three to twenty years, and all were considered to be good teachers by their principals.

By necessity, the students came from intact groups and could not be selected at random. Of the 718 students, 421 were male and 297 were female. Their mean age was 15 years with a standard deviation of six months.

Instruments. The first dependent variable, achievement in algebra, was measured by the Lankton First-Year Algebra Test, published by Harcourt, Brace and World, Inc. The publishers report the split-half reliability as .86 and the standard error of measure as 3.00. They further claim that, in relation to commonly accepted instructional emphasis, this test has a high degree of validity.

Attitude toward mathematics, the second dependent variable, was measured by the Revised Math Attitude Scale. This test, constructed by Aiken and Dreger (1961) consists of ten positive and ten negative statements which require responses on a five-point Likert Scale. The minimal attainable score was 20, while the maximum possible score was 100.

The Group Embedded Figures Test, published by Consulting Psychologists Press, Inc., was used to assess the cognitive style of the subjects. The test consists of 18 complex figures from each of which the student is required to isolate a given simple figure. The split-half reliability for this speed test was reported by the publishers to be .82.

Classroom climate was assessed by direct observation of teachers. To transcribe the data from direct observation to a meaningful measure of direct-indirect teacher behavior, the Flanders Interaction Analysis Categories system (FIAC) was employed. The Revised ID Ratio was computed by the method suggested by Flanders (1964, p. 30):

> A Revised ID Ratio is employed in order to find out the kind of emphasis given to motivation and control in a particular classroom. The number of tallies in Columns 1, 2, and 3 is divided by the number of tallies in Columns 6 and 7 to find this revised ratio. . . . This ratio eliminates the effects of categories 4 and 5, lecture and asking questions, and gives evidence about whether a teacher is direct or indirect in his approach to motivation and control.

Procedure. Each of the original 718 students took the GEFT to determine their relative position on the field-dependent--independent continuum. In addition, the achievement and attitude tests were administered to each student on two separate occasions (separated by approximately 10 weeks) and served as the pre- and posttests for the criterion measures.

To assess the classroom climate, each teacher was visited on three unannounced occasions. On each visit a tape recording was made of the lesson. The observer did not remain in the classroom during any of these lessons and the coding for the FIAC was done strictly on the basis of the tapes.

Final Sample. The identification of field-dependent and field-independent students was done on the basis of a frequency distribution of the GEFT scores. It was decided that subjects with scores of seven or less would be classified as FD, while students with scores of twelve or more would be considered FI. This distribution resulted in 242 FD subjects and 267 FI subjects. Of the original sample, 33.7 percent were FD and 37.2 percent were FI.

It was also necessary to distinguish between direct and indirect teachers. Since the review of the literature provided no specific ratio which could be used as the criterion for this classification it was decided that teachers with ID ratios of two or less would be considered direct and teachers with ratios of four or more would be considered indirect. Consequently, 7 (36.8%) of the teachers were direct and 7 were indirect.

As a result of using extreme groups on both cognitive style and classroom climate dimensions, 408 of the original 718 students were used in the analyses. The final sample consisted of 243 males and 165 females with a mean age of 15 years and standard deviation of 6 months.

Results

This study employed a 2 X 2 factorial design with students' cognitive style (FD vs FI) and classroom climate (D vs I) as the two independent variables. A multivariate analysis of Covariance (Finn, 1974) was used to test the first hypothesis and a univariate analysis of covariance (Finn, 1974) was used to test the remaining hypotheses. Table 1 presents the adjusted means, standard deviations, and all cell sizes for the four groups. Also found in Table 1 are the summary statistics for each research hypothesis. All tests were analyzed at the .01 level of significance.

For the first hypothesis, the multivariate F of 1.184 failed to reach significance and consequently was rejected. Although not significant, the FD/I group's adjusted means for achievement and attitude were higher than those of the FD/D group.

Table 1

ADJUSTED MEANS, STANDARD DEVIATIONS, AND N FOR ACHIEVEMENT AND ATTITUDES OF ALL FOUR GROUPS AND SUMMARY STATISTICS FOR ALL HYPOTHESES

Classroom Climate

			Direct		Indirect		Total	
			Achievement	Attitude	Achievement	Attitude	Achievement	Attitude
Cognitive Style	FD	Adj. Mean	25.39	66.03	27.86	67.17	26.11	66.58
		S. D.	7.68	17.20	8.19	19.80	7.81	18.48
		N	137		56		193	
				1		2		
	FI	Adj. Mean	27.06	64.79	29.51	66.39	28.07	66.08
		S. D.	7.36	17.32	7.92	15.06	7.58	15.93
		N	126		89		215	
				3		4		
	Total	Adj. Mean	26.19	63.67	28.37	67.05		
		S. D.	7.50	17.17	8.00	17.89		
		N	263		145			

Research Hypotheses

H_1: Cell 2 will score significantly higher than cell 1 on achievement and attitude.
Multivariate F = 1.184 d.f. = 2 and 402 p .307

H_2: Cell 2 + cell 4 will score significantly higher than cell 1 + cell 3 on attitude.
Univariate F = 2.09 d.f. = 1 and 401 p .149

H_3: There will be no difference between cell 2 and cell 3 + cell 4 on achievement.
Univariate F = .31 d.f. = 1 and 401 p .578

H_4: Cell 3 + cell 4 will score significantly higher than cell 1 on achievement.
Univariate F = 19.23 d.f. = 1 and 401 p .0001

The univariate F for the second hypothesis also failed to reach significance. Again, the difference was in the expected direction.

The third hypothesis stated there will be no significant difference between the field-independent students and the field-dependent/indirect students on the achievement measure. The F-ratio was found to be .31 which is not significant and therefore the third hypothesis was accepted.

For hypothesis four, the univariate F-ratio of 19.2 was significant well beyond the .01 level. Field-independent students did score significantly higher than the field-dependent/direct students on achievement in first-year algebra.

In an attempt to add support to the existing literature on cognitive style and classroom climate, a two-way multivariate analysis of covariance was performed which tested the full model. The independent variables were cognitive style; classroom climate and pre-achievement and pre-attitude scores served as the covariates to the post-achievement and post-attitude scores. The results for this analysis can be found in Table 2. Significant multivariate F's were found for both cognitive style and classroom climate and no significant interaction existed. For both main effects, however, the achievement variable solely contributed to the significant differences. Consequently, field-independent students scored significantly higher than field-dependent students in achievement, while indirect students scored significantly than direct students.

Discussion

Based on the analysis of the results on this study the following conclusions are offered with reference to the population studied.

Table 2

SUMMARY STATISTICS FOR THE MULTIVARIATE ANALYSIS OF COVARIANCE OF THE SCORES FOR ALL GROUPS ON ACHIEVEMENT AND ATTITUDE POSTTESTS USING THE ACHIEVEMENT AND ATTITUDE PRETESTS AS COVARIATES

Source	Variable	D.F.	M.S.	Multivariate F	Univariate F	P
	Ach.-Att.	2	-	5.50	-	.004
Cognitive	Ach.	1	245.22	-	9.89	.002
Style	Att.	1	73.96	-	.92	.338
	Ach.-Att.	2	-	10.85	-	.001
Classroom	Ach.	1	498.26	-	20.10	.001
Climate	Att.	1	167.74	-	2.09	.149
Cognitive	Ach.-Att.	2	-	.13	-	.882
Style BY	Ach.	1	.01	-	.00	.981
Classroom	Att.	1	20.37	-	.25	.615
Climate						
	Ach.-Att.	401	-			
Error	Ach.	402	24.79			
	Att.	402	80.12			

1. Cognitive style and classroom climate do not significantly affect attitude toward mathematics- as measured by the Lankton First-Year Algebra Test.
2. Significant differences exist between field-dependent and field-independent students on the criterion of achievement in first-year algebra. Field-independents scored significantly higher than field dependents.
3. Students score significantly higher in achievement in first-year algebra if they are in an indirect setting than if they are in a direct setting.
4. The significant differences between field-dependent and field-independent may be explained in terms of the students' participation in direct or indirect classrooms. Field-independent students score significantly higher in achievement than field-dependent students in a direct setting, but not significantly higher than field-dependent students in an indirect setting.

If the teacher's goal is to structure the environment so that maximum learning occurs, he must be aware of the students' entering behavior and as such, the students' cognitive style. This is extremely important since it appears that cognitive style affects student performance in at least two ways: first, in their ability to achieve, and second, in their perceptions of an reactions to the environment.

Two major implications for teachers of mathematics can be drawn from the literature in general and this study in particular. First, math teachers need to be trained to teach to both cognitive styles. Because of the social nature of field-dependent students, it is important for teachers to establish patterns of behavior that allow these students freedom to respond. The field-independent student has an advantage in algebra because of the impersonal nature of the content; the field-dependent person, however, can overcome this disadvantage if given the proper setting. This setting includes teacher behaviors of praise, encouragement, and acceptance of student ideas.

Second, teachers of mathematics need to stimulate the development of both cognitive styles in their students. The purpose of this study was not to prove that one style is "better" than the other but to show that how they differ can affect performance in algebra. It seems that the field-independent person is more suited to analytic subjects but lacks the social skills which are important in personal encounters. The opposite appears to be true for the field-dependent person. He/she has the necessary social skills but is at a disadvantage in analytic subjects such as algebra. The teacher, with carefully planned curricula and classroom environments may be able to foster the development of skills in both domains. By creating a climate within the mathematics class which stresses the importance of concepts, yet is sensitive to the human component, the teacher may be able to develop in students the desirable attributes of both styles.

In light of these results it would appear that taking into account students' cognitive style and classroom climate may indeed be a viable approach to studying the complexities of learning.

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RELATIONSHIP BETWEEN PERFORMANCE IN EIGHTH GRADE SCIENCE AND STUDENT PERCEPTIONS OF THE TEACHER

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The "ideal teacher" has been described as one who establishes good relationships with students, is enthusiastic, and knows his subject (Torrence and Meyers, 1972; Bybee, 1973; Saunders and Wright, 1974; and Wright and Alley, 1977). Student responses to statements regarding behaviors of the ideal teacher were used to establish these general characteristics. Determining the relationship between student performance and "teacher idealness" as perceived by the student has been identified as an important research task (Balzer, Evans, and Blosser, 1973).

The purpose of this study is to determine if a relationship exists between eighth grade science students' perceptions of their teacher and the students' performance in their eighth grade science course.

Students in this study were enrolled in a suburban middle-school in metropolitan Cincinnati, Ohio. Two teachers' classes were used. Although the science program was "traditional", the teachers did have a scheduled laboratory time and adequate equipment to enable active student participation.

Students' perceptions of their teachers were measured by an "Ideal Science Teacher - My Science Teacher" checklist. A copy of the instrument is presented in Figure 1.

Figure 1
"Ideal Science Teacher-My Science Teacher" Checklist

Name ____________________

The following behaviors could be exhibited by a science teacher. Read each statement and indicate how frequently you believe the ideal science teacher should exhibit each behavior and how frequently your science teacher exhibits the same behavior. Record your opinions in the appropriate blanks using the following code:

1	Never
2	Seldom
3	Sometimes
4	Frequently
5	Always

THE IDEAL SCIENCE TEACHER		MY SCIENCE TEACHER
	MAKES DIFFICULT POINTS CLEAR	
	IS ENTERTAINING	
	INSISTS UPON A QUIET CLASSROOM	
	RAISES HIS VOICE AND SHOUTS	
	IS PATIENT	
	TELLS JOKES	
	IS STRICT	
	GETS UPSET AND BECOMES ANGRY	
	RESPECTS MY IDEAS	
	ENJOYS LIFE AND IS FULL OF FUN	
	PERMITS FOOLISH BEHAVIOR IN CLASS	
	THINKS ALL HIS PUPILS ARE IMPORTANT AS INDIVIDUALS	
	HAS A GOOD SENSE OF HUMOR	
	MAKES ME WORK HARD	
	IS EAGER TO HELP WHEN I NEED IT	
	HAS MANY INTERESTS	
	IS FIRM	
	IS INTERESTED IN TEACHING	
	ENJOYS BEING WITH YOUNG PEOPLE	
	ENCOURAGES ME TO DO EXPERIMENTS	
	IS AWARE OF WHAT'S HAPPENING IN CLASS	
	ENCOURAGES ME TO ASK QUESTIONS	
	EXPRESSES HIMSELF CLEARLY	
	TELLS ME THE PURPOSE OF EACH LESSON AHEAD OF TIME	
	IS SERIOUS	
	LIKES TO LEARN	
	ENCOURAGES ME TO SOLVE PROBLEMS	

Figure 1 (continued)

_____ IS OPEN-MINDED _____
_____ PLANS INTERESTING LESSONS _____
_____ ENCOURAGES ME TO DISCOVER THINGS
FOR MYSELF _____

One final look. Check the one statement that best summarizes your attitude toward science.

_____ I LIKE SCIENCE A LOT, IT'S ONE OF MY THREE MOST
FAVORITE SUBJECTS.
_____ I LIKE SCIENCE BUT IT'S NOT ONE OF MY THREE MOST
FAVORITE SUBJECTS.
_____ I DON'T LIKE OR DISLIKE SCIENCE.
_____ I DISLIKE SCIENCE BUT IT'S NOT ONE OF MY THREE
LEAST FAVORITE SUBJECTS.
_____ I DISLIKE SCIENCE A LOT: IT'S ONE OF MY THREE
LEAST FAVORITE SUBJECTS.

A previous study had identified four factors among the ideal-teacher behaviors (Markle, Johnston, Hogan, and Smith, 1977). They were:

Facilitation: Behaviors relating to the ability of the teacher to interact intellectually with students.

Amiability: Behaviors relating to the ability of the teacher to interact socially with students.

Management: Behaviors relating to the ability of the teacher to control students in the classroom.

Self-Control: Behaviors relating to the ability of the teacher to control his emotions.

In addition to the previously identified related behaviors, a fifth category, called Heuristic Teaching, was added (Suchman, 1977). F Figure 2 shows the specific behaviors within each category.

Figure 2

Categories of Ideal Teacher Behaviors
Identified Through Factor Analysis

Category Name	Representative Behavior
Facilitation	Makes difficult points clear Is patient Respects my ideas Thinks all of his pupils are important as individuals Is eager to help when I need it Enjoys being with young people Expresses himself clearly Is open-minded
Amiability	Is entertaining Tells jokes Enjoys life and is full of fun Has a good sense of humor Has many interests
Management	Insists upon a quiet classroom Is strict Makes me work hard Is firm Is aware of what is happening in class Is serious Permits foolish behavior in class (negative)
Self-Control	Raises his voice and shouts Gets upset and becomes angry
Hueristic Teaching	Encourages me to do experiments Encourages me to ask questions Tells me the purpose of each lesson ahead of time Encourages me to solve problems Plans interesting lessons Encourages me to discover things for myself

Student responses to the Ideal Science Teacher - My Science Teacher checklist were collected by homeroom teachers during the first week of May. After the end of the school year, science grades in six, seventh, and eighth grade, and student sex were recorded for each student by the school guidance counselor who then removed the student's name.

A factor analysis of students' responses in the current study supported the previously identified components and included heuristic teaching behavior as a separate factor. The factor analysis supports the construct validity of the five components of ideal teacher behaviors.

The measure of student performance used in the current study was the eighth grade science grade. Multiple step-wise regression analysis was employed to identify significant predictors of student performance among the dependent variables: (1) sixth grade science grade, (2) seventh grade science grade, (3) affinity toward science as measured by the single item at the end of the IST-MST checklist, student perceptions of the teachers' use of (4) facilitative behaviors, (5) amiability behaviors, (6) management behaviors, (7) self-control behaviors, and (8) heuristic-teaching behaviors.

Table 1 is the simple correlation matrix for all variables. The correlation coefficients indicate a relationship between performance, as measured by the eighth grade science grade, and previous science grades (grades 6 and 7), perceived facilitation behaviors and perceived amiability behaviors.

Table 1

Correlation Matrix of Variables Used in Step-wise Regression Analysis

	7th grade science	6th grade science	liking science	facilitative behavior	amiability behavior	classroom management	self-control	Heuristic-teaching
8th grade science grade	.54*	.42*	.21	.31*	.27*	.10	-.09	.16
7th grade science grade		.59	.01	.09	.02	-.04	-.15	-.01
6th grade science grade			-.01	.10	-.01	-.04	-.15	.04
liking science				.30*	.34*	.13	-.14	.33*
facilitative behavior					.67*	.41*	-.23	.76*
amiability behavior						.19	-.18	.61*
classroom management behavior							.30*	.39*
self-control behavior								-.11

* p ≤ .01, n = 250

The step-wise multiple regression technique was used to examine relationships between performance and individual variables. Its use enabled the researchers to answer questions such as "Is there a significant relationship between performance and sixth grade science grade when the effect of the seventh grade science grade is removed?"

Table 2 indicates that all variables, when considered together, are significantly related to the student's eight grade science performance. When specific variables are examined, previous history in science, facilitative behaviors, liking science, amiability behaviors and hueristic-teaching behaviors are found to relate significantly to pupil performance. Self-control behaviors and classroom management behaviors are not significantly related to pupil performance. (Table 3)

Table 2

Summary of Multiple Regression Analysis Relating All
Variables to Eighth Grade Science Performance

Variable	DF	S.S.	M.S.	F.	Significant?
Regression	7	99.4168	14.2024	24,039	yes
Residual	242	142.9832	0.5908		

p _ .01 Multiple R = 0.640

Table 3

Summary of Step-wise Regression Analysis Relating Individual Variables to Eighth-Grade Science Performance

Variable	Multiple R	D.F.	F	Significant?
Seventh Grade Science Grade	.540	7/242	48.506	yes
Facilitative Behaviors	.602	7/242	6.708	yes
Liking Science	.613	7/242	5.049	yes
Sixth Grade Science Grade	.623	7/242	7.126	yes
Amiability Behavior	.631	7/242	5.899	yes
Hueristic-Teaching Behavior	.636	7/242	2.835	yes
Self-Control Behavior	.640	7/242	2.461	no
Management Behavior	.640	7/242	0.014	no

$p \leq .01$

Further examination of the data, shown in Table 4, reveals that the contribution of each variable is not equivalent. Using the "Change in Multiple R squared" as the measure of variance accounted for by each variable, we see that previous history of science performance accounts for 30.2% of the variance in eighth grade science performance. Teacher-facilitative behaviors account for 7.2%; liking science, 1.2%; amiability behaviors, 1%; and hueristic-teaching and teacher self-control combine for about 1%. Combined, these variables account for approximately 41% of the variance in eighth grade science performance.

Table 4

Summary of Step-Down Multiple Regression Data For Variables Significantly Related to Student Performance in Eighth Grade Science

Variable	Multiple R	R SQ	R SQ Change (% of Variance Accounted for)
7th Grade Science Grade	.540	.292	.292
Facilitative Behavior	.603	.363	.072
Liking Science	.613	.375	.012
6th Grade Science Grade	.623	.388	.013
Amiability Behavior	.631	.398	.010
Hueristic-Teaching	.636	.404	.006
Self-Control	.640	.410	.006

It appears that the classes of teacher behaviors used in the present study do not exert a great influence on student performance in eighth grade science - all together, the teacher behaviors account for 9.4% of the variance. However, these behaviors are significantly related to student performance and unlike many other variables, they are under the control of the classroom teacher. They represent variables that teacher-training institutions and in-service teacher trainers can hope to alter in a positive manner. Science teachers can be trained to use facilitative behaviors and to be more socially amiable. When this has been done, student perceptions of teachers' behavior in these domains should improve and performance in science can be expected to follow suit.

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THE RELATIONSHIP OF TRAIT ANXIETY, PEER PRESENCE, TASK DIFFICULTY, AND SKILL ACQUISITION OF SIXTH GRADE BOYS

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Among the many variables which, in combination, could possibly influence the learning process are four which are of special interest in this study. They are: (a) social facilitation, a situation in which the presence of others is predicted to have either beneficial or detrimental effects on individual learning and performance; (b) anxiety level, conceivably a relatively stable personality characteristic or transitory emotional state bound to specific circumstances and associated with perceived stress; and (c) task difficulty. The variables are discussed below with regard to how they have been shown to influence learning processes alone and in combination.

Learning and performance situations frequently involve the presence of people other than the learner/performer. Classroom settings, athletic practice sessions, and competitive events are excellent examples of such situations. The spectators or audience in these environmental situations vary in their degree of affiliation with and relationship to the learner/performer. Because of this they also vary in their potential for affecting the individual's behavior and psychological state. They may be peers, parents, authority figures, or strangers. The learner may perceive them as positive, negative, or neutral elements in the learning/performance situation, depending upon past experiences and associations (1, 2, 8)

Considerable experimental evidence indicates that the presence of others can either facilitate or adversely influence the acquisition of skill and knowledge (3, 4, 6, 7, 9). The learning/performance effect resulting from the presence of others, commonly referred to as the social facilitation phenomenon, has stimulated the development of a systematic theory designed to account for the occurrence. The main tenet of the theory is that spectators, in general, will increase the arousal level of individuals performing in their presence. This, in turn, increases the prevailing drive state and results in the emission of dominant responses that happen to be present in the learner/performer at the time (20). Dominant responses can be either appropriate (correct) or inappropriate (incorrect) for a particular situation, depending upon whether the learner has had prior experiences in the task or similar task situations. If responses to the situation are relatively new and previously unencountered, the dominant responses will be primarily incorrect ones until the task is learned.

Still another explanation of audience effects takes into account the anxiety level of the learner/performer. Level of anxiety has been shown to parallel the level of stress perceived in a given situation. Certain social situations may be regarded as stressful because of past associations and experiences with peers and authority figures. However, despite studies which have shown that anxiety levels are associated with certain performances under varying social situations, it is still difficult to reach any definite conclusions about the relationship of anxiety and social facilitation. A good portion of the available literature, however, suggests that high-anxious individuals are affected more detrimentally by heightened motivating conditions (i.e., competition, rivalry) or failure reports than are individuals of lower anxiety levels (5, 11). This would seem logical since it is generally accepted that high-anxious individuals perceive a wider range of stimuli as potentially threatening than do low-anxious individuals.

Task difficulty is a variable which is also conceivably closely associated with social facilitation concerns and an individual's anxiety level. Naylor and Briggs (13) have elaborated on two intratask parameters they consider to contribute to task difficulty. These are task complexity and task organization. Both are reflected in the performance level of the individual. Task complexity is a function of the learner's ability to process each of the dimensions or parts of the task independently. Task organization is concerned with the interrelationship existing among the several dimensions of the task.

Though the performance of a task may require that a person respond to a given level of task complexity and task organization, this does not necessarily imply, by itself, that an individual will encounter difficulty in learning or performing (10, 18). On the contrary, what appears to be a far more salient, though frequently neglected, feature that should be used in identifying the difficulty of a task is the psychological stress associated with the task as it is perceived by the learner (16). Such stress may cause changes in level of anxiety. Such changes in anxiety levels may depend, to some extent, on the learner/performer's perception of peers who are present during the learning/performance.

The findings regarding the nature of the relationship between social facilitation, anxiety, and task difficulty, particularly as they are related to children's learning and performance, are not as yet clearly defined.

The effects of social facilitation may change with increasing age and with sex affiliations. It is not inconceivable that a developmental trend exists which is yet undefined by present research.

Method

The total population of sixth grade boys enrolled in Augusta N. Raa Middle School, Leon County, Florida, served as participants in the study (N=181). The STAIC Form C-1 trait questionnaire (17) was administered to all sixth grade boys on one occasion, one and one-half weeks prior to the beginning of the experiment. Additionally, a peer questionnaire was administered to solicit each potential subject's choice of peer to be present during the learning/performing situation. Based on the results of the A-Trait questionnaire, the high-anxious (HA) and low-anxious (LA) boys were identified for participation in the study. They were randomly stratified into four experimental groups in order to equalize the high and low scores across the four groups which were counterbalanced for the independent variables of social situation and task difficulty. Table 1 illustrates the counterbalanced design. The respective location of the HA and LA subjects sampled approached ± 3 standard deviations from the mean with a range of 35 points.

Table 1

Structure of the Counterbalancing of the Independent
Variables and the Number of Dependent
Variables Considered in the Study

INDEPENDENT VARIABLES				DEPENDENT VARIABLES						
Groups		Anxiety	Social Situation	Task	AS1[a]	B1[b]	B2	AS2	B3	AS3
G1	=	High	Spectator	Hard						
G2	=	High	Spectator	Easy						
G3	=	High	Alone	Hard						
G4	=	High	Alone	Easy						
G5	=	Low	Spectator	Hard						
G6	=	Low	Spectator	Easy						
G7	=	Low	Alone	Hard						
G8	=	Low	Alone	Easy						

[a] AS = State Anxiety tests
[b] B = Blocks of trials

Each subject was given a total of 15 trials on a Pursuit Rotor (PR) task which was divided into three blocks of five trials each. All trials were separated by 20 second rest intervals. No verbal feedback was given to the subjects. All subjects were given instructions on how to take the three anxiety-state (AS), Form C-1 questionnaires which were to assess anxiety state during learning/performing trials. These were administered at the beginning of each testing period (AS1), between trials 10 and 11 (AS2), and after trial 15 (AS3).

Subjects were tested on one day under one condition of task difficulty and only under one social situation. In this manner no subject had any previous encounter with the testing equipment or knowledge of the circumstances surrounding the performance they were asked to give. A standardized set of instructions were read to each subject after he was seated in the testing area. When a spectator was present, the spectator's task was defined for him after the PR task was presented to the subject. Each spectator was asked to observe the subject's performance attentively and to record each of the subject's scores accurately on the scoresheet provided. The spectator was seated across from the subject and positioned so that he could see both the timing device for scoring trials and the subject's performance. The subject was cautioned not to interact with the experimenter or the spectator. During the subject's performance, the experimenter, counting devices and tape recorder were shielded from the visual field of the subject to minimize distracting movements.

The data were treated with a three-factor multivariate analysis of variance (MANOVA - Mulgen: Multivariate General Linear Hypothesis). The factorial levels were: (a) social condition (alone, spectator), (b) task difficulty (easy, hard), and (c) trait anxiety (high, low). The data were divided into pretask and within task measures. Pretask measures were the trait anxiety scale score (AT), used as a blocking factor in the initial division of subjects into high anxious (HA) and low-anxious (LA) groups, and the first measure of state anxiety (AS1). This last score was used as a baseline measure of the subject's level of arousal prior to being introduced to the experimental situation. Within task measures included three measures of PR task performance (B1, B2, B3) and two state anxiety measures (AS2, AS3). The alpha level was set at .05.

Results

The following hypotheses were test in the study:

1. The performance of high and low anxious subjects performing alone, on the easy and the hard tasks, will be better than their performances in the presence of spectators.
2. State anxiety will be greater for the high and low anxious subjects performing in the presence of a spectator on both tasks than it will be for subjects performing alone.
3. High anxious subjects will perform better than low anxious subjects on the easy task and worse than low anxious subjects on the hard tasks.
4. There will be no significant two and three-way interactions among social situation, trait anxiety, and level of task difficulty.

The means and standard deviations of the dependent variables for all combinations of high and low-anxious groups, easy and hard tasks, and alone and spectator conditions are presented in Table 2.

Table 2

Means and Standard Deviations of the Dependent Variables

			Pretask Measures[d]				Within Task Measures									
			AT[e]		AS1[e]		B1[e]		B2		AS2		B3		AS3	
			M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
High-Anxious[a]	Easy Task[b]	Alone[c]	44.6	4.1	36.6	8.6	.8	.8	3.8	2.2	41.3	7.2	4.8	2.3	38.9	7.6
		Spectator	44.4	2.6	34.6	7.3	1.9	1.2	3.1	1.7	38.0	11.1	5.7	2.4	38.9	11.4
	Hard Task	Alone	43.8	2.7	39.3	5.6	2.6	2.3	6.2	4.3	43.4	7.3	9.4	5.5	45.2	7.8
		Spectator	44.3	3.0	35.0	5.7	4.7	1.9	10.0	3.5	34.6	5.2	13.7	2.6	32.0	3.6
Low-Anxious	Easy Task	Alone	25.4	2.4	27.6	3.1	1.4	1.9	3.4	3.7	29.6	7.1	5.5	4.4	30.1	7.9
		Spectator	25.2	2.4	28.8	1.4	1.9	1.3	5.4	2.2	32.3	3.6	7.3	3.1	31.2	4.2
	Hard Task	Alone	25.4	2.8	29.4	3.8	4.4	3.1	8.3	4.2	34.0	3.5	11.8	3.9	33.7	3.5
		Spectator	25.3	2.5	28.9	5.5	3.0	2.1	6.9	2.5	31.5	3.5	12.2	3.5	32.7	5.9

[a] N = 40

[b] N = 20

[c] N = 10

[d] Pretask measures indicated baseline measures for the purpose of this study.

[e] AT = Trait Anxiety; AS = State Anxiety; B = Blocks of Trials

Discussion

The first hypothesis was not supported by the results of the study as no main effect due to social situation was demonstrated for the first two blocks of trials (B1, B2) across both tasks. It was not until the last block (B3) that subjects in the spectator condition did significantly better than those in the alone group. Performance scores for the two social conditions, however, became more discrepant for both anxiety groups and both tasks from one block of trials to the next. The results of performances found in the earlier blocks of trials can be explained if it is assumed competing tendencies were initially present and none were dominant (12). The spectator condition may have elevated drive level and tended to facilitate performance (20). On the other hand, the presence of a spectator may, too, have served to reassure the subject and thereby lower drive level, thus adversely affecting performance (14).

However, the results of the B3 analysis can only be explained by assuming that performing under the stated conditions where another was present, observing and evaluating performance, provided the performer with stimulation which was not distracting or stressful, but which was beneficial to the acquisition of the skill. Presumably, the increased motivation arising from the subject knowing he was actively being observed encouraged him to demonstrate his ability to perform the task more than those performing in the alone condition. These findings are in keeping with social facilitation theory espoused by Zajonc (20).

The second hypothesis, dealing with whether anxiety would be greater for subjects working in the presence of a spectator or working alone, was not supported. Each of the three anxiety state scores (AS1, AS2, AS3) for those who performed alone were significantly higher than those who performed in the presence of a spectator over all blocks of trials, and across both tasks. This result can be explained if one discounts Zajonc's (20) hypothesis that audience presence is a drive energizer and a social facilitator, and adopts that of Noble et al. (14), Schachter (15), and Wrightsman (19). They hold that, in the presence of others, implicit cues of reassurance and sympathy reduce anxiety, drive and possibly performance. Presumably the spectator, as operationally defined in the present study, was not a source of threat but rather a source of comfort in the novel situation. This would seem plausible since the spectators were selected on the basis of their friendship with the subject.

Though performance of LA subjects on the hard task was better than that of the HA subjects, across both social conditions, the differences were not significant until the last block of trials. Thus the third hypothesis was not entirely supported by the data. Performance for the LA subjects on the easy task was significantly better than that of the HA subjects over all trials. These results can be explained by the concept of task difficulty put forth by Naylor and Briggs (13). Presumably, the difficulty of a task is not so much a function of task requirements as it is the level of psychological stress that a subject associates with the task. It would seem LA subjects tended to associate less stress with task performance for both tasks than did HA subjects. Apparently the difficulty of the task was more a function of the psychologically perceived stress than it was a function of the nature of the task itself.

The fourth hypothesis, that there would be no two- and three-way interactions among social conditions, anxiety, and level of task difficulty was not entirely supported by the results. An analysis of the anxiety X social condition interaction of the easy task, for each of the three blocks of trials, indicated that they were significant. On all three blocks HA subjects in the spectator condition did better than HA subjects in the alone condition. LA subjects did better in the alone condition and less well in the spectator condition. A plausible explanation for these results may be that drive level of the HA subjects was raised to an optimal level by the presence of a spectator. Such an explanation is in keeping with Zajonc's (20) conception of social facilitation. An explanation of the LA subject's performance might be that spectators caused non-optimal reductions in drive level by serving as reassurers or comforters. Performance of LA subjects in the alone condition might be explained if one notes that no spectator was present to serve as a distractor.

An analysis of the anxiety X social condition interaction for the hard task, for the third block of trials, also proved significant. LA subjects' performances were best under spectator conditions while those of HA subjects were best under alone conditions. High- anxious subjects may have experienced more competing response tendencies during performance of the hard task due to the difficulty of the task and to the presence of a spectator. Motivation to succeed in the task was hampered by changes in drive state to non-optimal levels. The LA subjects' performances can be explained by conceiving of the spectator as a factor which served to induce drive to optimal levels and thus facilitating performance.

Although task difficulty was not discussed in relation to within task fluctuations in state-anxiety demonstrated by subjects in the HA and LA groups, results of state-anxiety mean scores during performance on the easy and hard tasks indicated that there were differences in perception of task difficulty by subjects. Subjects performing the easy task, whether alone or in the presence of a spectator, demonstrated lower state-anxiety scores than subjects performing the hard task under similar conditions. Difficulty of the task may not only be a function of its complexity and organization as Naylor and Briggs (13) have suggested, but also associated with the psychological stress of the task situation as perceived by the individual. Generally speaking, as performance increased from the first to the last block of trials, state-anxiety decreased; although this was not so prevalent as with those performing the easy task.

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THE RELATIONSHIP BETWEEN WRITING APPREHENSION AND EIGHTH GRADE STUDENTS' ATTITUDES TOWARD LITERATURE

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The effect of anxiety on academic achievement has been the subject of a great deal of research in recent years. Speilberger (1966), Harris (1961) and others have demonstrated many complex inter-relationships between student anxiety and classroom performance. The effect of anxiety on communication skills seems especially evident. Heston and Palertine (1974) suggest that communication apprehension is a pervasive anxiety trait, one that may affect a large proportion of the population. Phillips (1968) defines the apprehensive individual as a "person for whom anxiety about communication outweighs his projection of gain from the situation." Daly and Miller (1975) suggest that "the highly apprehensive individual will avoid communication situations or react in some anxious manner if forced into them because he foresees primarily negative consequences from such engagements." The highly apprehensive individual is less motivated to achieve (Griffin and Gilham, 1971). He is also reluctant to engage in small group interactions (Daly, 1974). Individuals who demonstrate such anxiety tend to be lower in self concept than others (McCrosky and Daly, 1974) and receive lower rankings in groups (Quiggins, 1972).

Research on the effects of anxiety also suggests than anxiety levels in various communication skills may be inter-related. Miller and Daly (1975) found that communication anxiety was positively related to writing apprehension and that writing apprehension was related to such attitudes as tolerance for ambiguity. Given the relationships between these manifestations of anxiety and the effects of these relationships on attitudes, it seems reasonable to expect that anxiety may well be related to attitudes toward literature. This study attempts to explore the relationship between one such anxiety, anxiety toward writing, and attitude toward literature.

The sample for the present study was comprised of all eighth grade students in two middle schools located in suburban Cincinnati, Ohio school district. The district's curriculum director and interviewed English teachers reported that the secondary English program conforms to the standards for language arts instruction specified by the Ohio Department of Education. These standards mandate approximately equal emphasis on writing and literature study.

Student writing apprehension was measured with a writing apprehension instrument developed and validated by Daly and Miller (1975). A copy of this instrument is presented in Figure 1. Students' attitudes toward literature were assessed with a locally produced literature survey, a copy of which is presented in Figure 2. The items comprising the literature survey were judged by a panel of middle and high school teachers to reflect the objectives of the district's literature program.

Figure 1

Writing Apprehension Scale

Directions: Below are a series of statements about writing. There are no right or wrong answers to these statements. Please indicate the degree to which each statement applies to you by circling whether you (1) strongly agree, (2) agree, (3) are uncertain, (4) disagree, or (5) strongly disagree with the statement. While some of these statements may seem repetitious, take your time and try to be as honest as possible. Thank you for your cooperation in this matter.

1. I avoid writing
2. I have no fear of my writing being evaluated
3. I look forward to writing down my ideas
4. I am afraid of writing essays when I know they will be evaluated
5. Taking a composition course is a very frightening experience
6. Handing in a composition makes me feel good
7. My mind seems to go blank when I start to work on a composition
8. Expressing ideas through writing seems to be a waste of time
9. I would enjoy submitting my writing to magazines for evaluation and publication
10. I like to write my ideas down
11. I feel confident in my ability to clearly express my ideas in writing
12. I like to have my friends read what I have written
13. I'm nervous about writing
14. People seem to enjoy what I write
15. I enjoy writing
16. I never seem to be able to clearly write down my ideas
17. Writing is a lot of fun
18. I expect to do poorly in composition classes even before I enter them
19. I like seeing my thoughts on paper
20. Discussing my writing with others is an enjoyable experience
21. I have a terrible time organizing my ideas in a composition course
22. When I hand in a composition I know I'm going to do poorly
23. It's easy for me to write good compositions
24. I don't think I write as well as most other people
25. I don't like my compositions to be evaluated
26. I'm no good at writing

Figure 2

Literature Survey

Read the following statements carefully. If you AGREE STRONGLY with the statement, mark 5 on your answer sheet; if you AGREE, mark 4; if you are UNDECIDED, mark 3; if you DISAGREE, mark 2; and if you DISAGREE STRONGLY, mark 1.

AGREE STRONGLY = 5
AGREE = 4
UNDECIDED = 3
DISAGREE = 2
DISAGREE STRONGLY = 1

1. I like to read.
2. I read for pleasure.
3. I would rather read than do other school work.
4. I read books and stories even if they have not been assigned by my teacher.
5. I use the school library.
6. I use the public library.
7. I like to discuss what I have read with other people.
8. I purchase books.
9. I can find solutions to real-life problems in literature.
10. I try to act like some of the characters I read about.
11. I think literature is valuable.
12. I think literature helps me to understand other people.

Student responses to the writing apprehension and literature attitude scales were gathered by English teachers from all eighth graders in two middle schools early in June of 1977. This administration yielded a sample size of 674.

Data gathered on these two Likert-scaled instruments were subjected to principal components factor analysis employing the varimax rotation. Table I presents the results of this factor analysis for the writing apprehension scale.

Table I

VARIMAX ROTATED FACTOR ANALYSIS OF WRITING APPREHENSION INSTRUMENT

FACTOR	EIGEN-VALUE	% OF VARIANCE	CUM. %	LOADING	ITEM
I. Enjoyment of Writing	8.520	76.2	76.2	-.529	1. I avoid writing
				.593	3. I look forward to writing down my ideas
				-.548	8. Expressing ideas through writing seems to be a waste of time
				.693	10. I like to write my ideas down
				.744	15. I enjoy writing
				.711	17. Writing is a lot of fun
				.591	19. I like seeing my thoughts on paper
				.520	20. Discussing my writing with others is an enjoyable experience
II. Fear of Evaluation	1.599	14.3	90.5	.497	4. I am afraid of writing essays when I know they will be evaluated
				.512	5. Taking a composition course is a very frightening experience.
				.604	18. I expect to do poorly in composition classes even before I enter them
				.618	22. When I hand in a composition I know I'm going to do poorly
				.524	25. I don't like my compositions to be evaluated

The varimax rotated factor analysis of the writing apprehension scale yielded two significant factors which accounted for 90.5% of the sample variance. These factors were labeled "Enjoyment of Writing" and "Fear of Evaluation."

A varimax rotated factor analysis of the literature survey yielded one significant factor (eigenvalue greater than 1.0) which accounted for 84.9% of the sample variance. Since, however, the second factor approached significance (eigenvalue = .820) and accounted for all of the remaining sample variance, these two factors were combined to form a literature attitude score. The results of this factor analysis are shown in Table II.

Table II

VARIMAX ROTATED FACTOR ANALYSIS OF LITERATURE ATTITUDE SURVEY

FACTOR	EIGEN-VALUE	% OF VARIANCE	CUM. %	LOADING	ITEM
I. Enjoyment of Literature	4.586	84.9	84.9	.834	1. I like to read
				.828	2. I read for pleasure
				.577	3. I would rather read than do other school work
				.738	4. I read books and stories even if they have not been assigned by my teacher
II. Interaction with Literature	.820	15.1	100.0	.500	7. I like to discuss what I read with other people
				.694	9. I can find solutions to real life problems in literature
				.410	10. I try to act like some of the characters I read about
				.603	11. I think literature is valuable
				.728	12. I think literature helps me to understand other people.

Following the factor analysis procedure, factor scores for each student were computed by summing the student's responses to each of the heaviest (.4 or higher) loading items comprising each factor. Resulting from this procedure were scores on three variables for each student: Enjoyment of Writing (EOW), Fear of Evaluation in Writing (FOE-W), and Attitude Toward Literature (ATL). The Pearson Product-Moment correlation coefficients for these variables are shown in Table III.

Table III

PEARSON CORRELATION COEFFICIENTS AMONG ENJOYMENT OF WRITING, FEAR OF EVALUATION AND ATTITUDE TOWARD LITERATURE

VARIABLE	MEAN	S	CORRELATION WITH: EOW	FOE-W	ATL
EOW	1.311	.800	1.000	-.490*	.460*
FOE-W	3.337	.748		1.000	-.244
ATL	2.631	.754			1.000

* $p \leq .01$

Since it is evident from the simple correlation coefficients reported in Table III that a relationship of some type exists among the variables, a multiple step-wise regression analysis was performed to determine significant predictors of student attitude toward literature from the independent variables Enjoyment of Writing and Fear of Evaluation. The use of the multiple step-wise regression procedure enabled the researchers to examine the relationship between individual variables and to answer such questions as, "Is there a significant relationship between Attitude Toward Literature and Enjoyment of Writing when the effect of Fear of Evaluation has been removed?"

Table IV indicates that Enjoyment of Writing and Fear of Evaluation, when considered together, are significantly related to the students' Attitude Toward Literature. When specific variables are examined (Table V), only Enjoyment of Writing is shown to be significantly related to student Attitude Toward Literature. Fear of Evaluation is not directly related to literature attitudes in a significant manner.

Table IV

SUMMARY OF MULTIPLE REGRESSION ANALYSIS RELATING ENJOYMENT OF WRITING AND FEAR OF EVALUATION TO ATTITUDE TOWARD LITERATURE

VARIABLE	DF	SS	M.S.	F	p ≤
Regression	1	80.9778	80.9778	180.6257	.001
Residual	672	301.2698	0.4483		

Multiple R = .4603

Table V

SUMMARY OF STEP-WISE MULTIPLE REGRESSION ANALYSIS RELATING INDIVIDUAL VARIABLES TO ATTITUDE TOWARD WRITING

VARIABLE	MULTIPLE R	D.F.	F	SIGNIFICANT?
Enjoyment of Writing	.4603	1/672	180.626	Yes
Fear of Evaluation	.4608	2/671	0.389	No

$p \leq .01$

Further examination of the data, shown in Table VI, reveals the amount of variance in Student Attitude Toward Literature which can be accounted for by the significant independent variable, Enjoyment of Writing. Using the "Change in Multiple R Squared" as the measure of variance in student attitude which is accounted for by Enjoyment of Writing, it may be seen that writing enjoyment accounts for 21.2% of the variance in student attitudes toward literature. Fear of evaluation, found to be a non-significant predictor, accounted for less than 1% of the variance in student attitudes toward literature.

Table VI

SUMMARY OF STEP-DOWN MULTIPLE REGRESSION DATA FOR VARIABLES RELATED TO STUDENT ATTITUDES TOWARD LITERATURE

VARIABLES	MULTIPLE R	R SQ	R SQ CHANGE (% OF VARIANCE ACCOUNTED FOR)
Enjoyment of Writing	.4603	.2119	.2119
Fear of Evaluation	.4608	.2123	.0005

The data employed in the present study suggest that a student's enjoyment (or lack of enjoyment) of writing exerts a substantial influence on that student's attitude toward literature. This information is of special importance to classroom teachers, teacher educators and program managers; anyone, in fact, who is interested in improving student attitudes toward literature and reading.

What is suggested by this relationship between enjoyment of writing and attitude toward literature is that literature attitudes might be altered through manipulation of a student's writing apprehension. In other words, if a teacher is able to increase the amount of enjoyment a student derives from writing, it is likely to bring about a commeasurate increase in literature attitude score.

Some educators may be tempted to conclude that attempting to raise the level of enjoyment a student finds in writing is at least as difficult and probably as mystical as attempting to improve attitudes toward literature in a more direct fashion. However, at least one technique for manipulating student enjoyment of writing which is under the control of the classroom teacher is suggested by the foregoing analyses. The significant inverse correlation which exists between Enjoyment of Writing and Fear of Evaluation (Table III) leads us to speculate that by decreasing a student's fear of evaluation, the teacher is likely to increase the amount of enjoyment the student finds in writing. The remaining analyses provide evidence that this increased enjoyment in writing will affect the student's attitudes toward literature in a positive manner. Additional research on this relationship, which is either experimental or employs path analysis procedures, is a logical next step toward substantiating these hypotheses.

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